Vol. LI., No. 2265.—Saturday, July 3, 1886.

The BUILDER

ILLUSTRATIONS.

The Gwalior Gateway, Colonial and Indian Exhibition 13
Monument to the late G. E. Street, in the Law Courts.—Mr. A. W. Blomfield, M.A., Architect; Mr. H. H. Armstead, R.A., Sculptor... 13
Mechlin Cathedral Tower as originally intended 16-17
The Palace Water-Gate.—From a Sketch by Mr. H. H. Statham 20-21
The Tower Bridge.—Mr. Horace Jones, Architect; Mr. J. Wolfe Barry, Engineer 24-25
Holloway College, Egham (Two Views).—Mr. W. H. Crossland, Architect 28-29
Window in Carved Wood from Bhera Shahpur, Punjab, at the Colonial and Indian Exhibition 32-33

CONTENTS.

The Art of the Saracens in Egypt 1
The Palazzo Vitelleschi at Corneto Tarquinia.—By the Baron de Geymüller 3
Notes 5
Letter from Paris 7
The Paris Metropolitan Railway System, as Proposed 8
Monument to the Late G. E. Street 9
The Gwalior Gateway 9
Mechlin Cathedral 10
The Palace Watergate 10
The Tower Bridge 10
Window from Bhera Shahpur, Punjab 36
The Office of Superintending Architect: Metropolitan Board of Works 36
The Royal Holloway College, Egham 36
The Late Mr. J. Kyrke Penson, J.P., F.S.A., Architect 37
Association of Municipal and Sanitary Engineers and Surveyors 37
Competitions 37
The Victoria Hospital for Children, Chelsea 38
Water Supply 38
Provincial News 38
Church Building News 38
School-Building News 39
Stained Glass 39
The Student's Column: Stone Quarries.—I. 39
Books: Zur Profan-Architektur (Bachem, Cologne); Les Artistes Célèbres—Pheidias (Paris: Librairie de l'Art); Sander's Reichenbachiana (Sotheran) 40
Recent Patents 40
Recent Sales of Property 42
Meetings 42
Miscellanea 42
Prices Current of Building Materials 43

The Art of the Saracens in Egypt.

IN his work just published under the above title* Mr. Stanley Lane Poole has aimed at giving a study of a chapter in Saracenic art hitherto not dealt with in a systematic manner. The well-known work of Prisse d'Avennes, with its magnificent series of illustrations, throws little critical or historical light on the subject. Mr. Poole, a member of a family who have a kind of hereditary right to speak on matters of Egyptian art, commences his work with a brief historical sketch of the position of the Saracens in Egypt, followed by a critical consideration of the art which they developed there, classifying it under the heads of architecture, stone and plaster, mosaic, woodwork, ivory, metal-work, glass, heraldry, pottery, textiles, and illuminated MSS.

We must pass lightly over the historical portion of the work, which is presented in a very concentrated form. The author gives the period from the thirteenth to the sixteenth century as that of the real splendour of Mohammedan art in Egypt, though the rule of the Mohammedans in that country extends from the seventh century to the present day. But "after the destruction of the Mamlūk power by the Ottoman emperor, Selīm, in the beginning of the sixteenth century, though a few rare survivals of the ancient artistic genius of the Saracens are found, and in the smaller branches of skilled industry, in woodwork, glass, and mosaic, the workmen of Egypt continued to produce some excellent results, the energy and enthusiasm of the artists languished for lack of encouragement, and, as a rule, the period of Turkish domination furnishes but the record of a long and dreary process of degeneration in every branch of art, until the nadir of Eastern art was reached in the palaces of the Khedives." For the classification of the periods of Saracenic history in Egypt, and some account of some of the most conspicuous rulers and those who exercised most direct influence on art, we will refer our readers to Mr. Poole's book, which, on this historical head, gives a good deal of information in a small space, and in a clear and concise manner, and is accompanied by a chronological table of the Saracen rulers of Egypt and of the principal events during their respective reigns.

The remark with which Mr. Poole commences his chapter on the Saracenic architecture of Egypt,—that most of the arts of the Saracens clustered round and were related to their buildings, is one which it is hardly necessary to apply to Saracenic art in particular, either in Egypt or elsewhere. It applies fully as strongly to European Mediæval art, and more or less to national arts generally, or with but partial exceptions in the Greek, Roman, and Renaissance periods.

Among the points to which the author calls attention in connexion with the purely architectural section of the subject, is the treatment of the dome, which, by the way, Mr. Poole denies to be an essential feature of the mosque. A dome, he says, is the roof of a tomb, and only exists when there is a tomb to cover; but most of the mosques are mausoleums, and accordingly are domed. There are no doubt mosques without domes, but we feel inclined to question the theory that there is no cause in the shape of architectural preference for the great preponderance of the dome form as a mosque roof; a mosque is essentially a building with a wide central area, not a vista or avenue like an Egyptian or Greek temple, or a Mediæval church; and for a building of this description the dome in one form or another has always been a favourite method of roofing. The Saracenic domes in Egypt are generally, Mr. Poole notes, built of brick, the bricks, however, not being shaped or gauged to the curve, only placed so that each course slightly oversails the one beneath it; the plaster coating conceals the slight irregularity of the brickwork. Some of the smaller and lighter domes are only plaster on a wooden framework or cradling, of which an example is shown in the foreground of the view of the Mosque of Ibn-Tūlūn (fig. 4). In the cases where the domes are of stone, however, the stone is shaped and the decoration carved upon it. "As a rule," says the author, "I have observed that plain and fluted domes are of plastered brick, whilst those ornamented with zigzag, geometrical, and Arabesque devices are more commonly of carved stone." It would be rather more correct to put it the other way, and say that stone domes are usually decorated with arabesques, &c., and plaster domes with thesim pler decoration of fluting. The superior and more durable material is worth the superior decoration, which is in accordance with architectural common sense, though not in accordance with the Saracenic practice in some other situations and countries, elaborate plaster ornament forming, as we all know, a very common feature in Saracenic work.

Mr. Poole classifies the mosques under two principal forms of plan,—the cloistered mosque, of which he takes that of Ibn-Tūlūn (of the interior which an admirable illustration is

* The Art of the Saracens in Egypt. By Stanley Lane Poole, B.A., M.R.A.S. With 108 woodcuts. Published for the Committee of Council on Education, by Chapman & Hall, 1886.

given) as a typical example, and the cruciform mosque, of which he takes that of Sultan Hasan as the finest example, which dates from 1356–9, and the legend goes that the Sultan "took the futile precaution of cutting off the architect's hand, in order to prevent any further efforts of his genius." The introduction of the adjective "futile" seems to suggest that the author has some theories as to the position of the architect in relation to his work, which it is disappointing to find thus only vaguely hinted at. The detailed description of the mosque, however, is of sufficient interest to quote :—

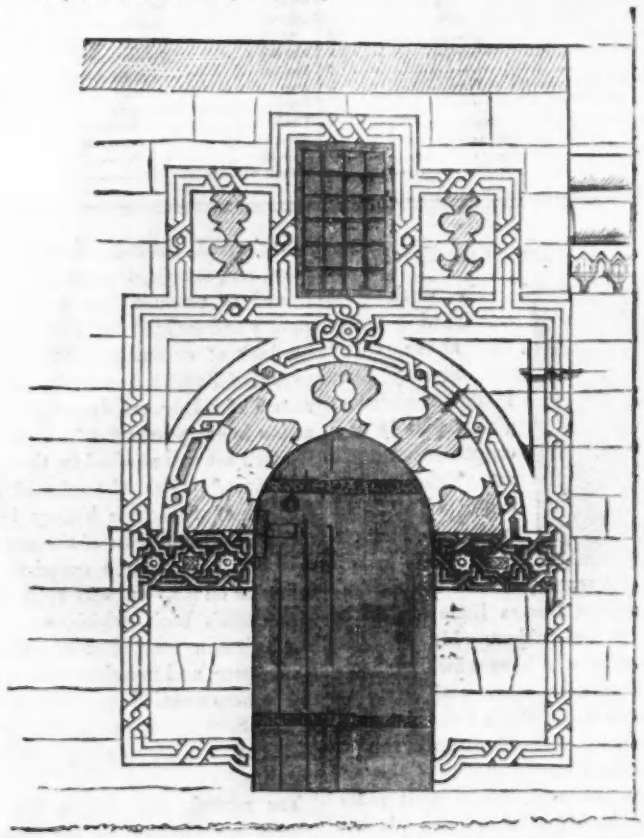
"The interior of the mosque consists of a cross,* of which the transept on the east side, which may be compared to a chancel, is larger than the three other arms, while the founder's chapel (over which is the dome) occupies the position of a lady-chapel behind the chancel. The outline of the founders' chapel is visible on the outside, but the cross-shape is not; the spaces in the right angles, between the four transepts or arms, are so filled with offices and schools and other apartments (as is the case with most cuneiform mosques), that the exterior has the form of an irregular oblong, the sloping outline of which is partly due to the line of the street which runs past the mosque to the citadel, which it confronts. The exterior walls from the base to the top of the cornice are about 113 ft. high, and are entirely built of finely-cut stone brought from the Pyramids. The broad expanse of wall is slightly relieved by windows, of which the most prominent, those of the founder's chapel, consist of two horse-shoe-headed lights, surmounted by a single round window, placed in a tall shallow recess, which is brought forward at the top to the face of the wall by stalactite corbelling supporting a trefoil arch. The other windows are plain rectangular grilles (sometimes as many as eight, one above another), similarly placed in tall shallow recesses with stalactite tops, or small circular windows set in square recesses. The eastern corners of the main building resemble polygonal towers, and the angles of the chapel are ornamented with graceful pilasters or engaged columns, carved in a spiral or twisted design, with stalactite cupolas, reaching to nearly half the height of the wall. The cornice, which is unusually prominent in this mosque, and forms one of its most beautiful features, consists of six tiers of stalactites, each overhanging the one below it, till the top projects some 6 ft. ; the coping is plain, without the usual crenellated parapet."

The other main features externally are the dome, rebuilt in the last century, and not worthy of the building ; three minarets, of which that on the south-east angle, the tallest, is 280 ft. in height, and the main portal, on the beauty of which Mr. Poole is eloquent ; an engraving of a portion of the ornament, which is given (fig. 8), shows what rich and effective work it must be. Another piece of carved ornament from this mosque (fig. 9) is even finer. The interior of the mosque is mostly brick plastered over, but the facing of the arches is of stone. The decorative effect of the interior is mostly concentrated about the *mihrab* or prayer niche. "The interior of the niche is beautifully adorned with three tiers of arches (the first pointed, the second round, and the third trefoil), supported by dwarf columns, one above another, and divided by arabesque borders and bands of greenstone. The backgrounds of the arches behind the dwarf columns are alternately of red and green marble, the shell-like top of the niche is decorated with marbles arranged in rays, and the facing of the arch itself is treated with the common zigzag ornament, which is seen so frequently around arches and over doors in Cairo. The effect of the whole is extremely rich, and the details are finished with infinite care and skill." The character of the external architecture, however, with its monstrous cornice tier over tier, and projecting 6 ft., does not belong to the higher order of architectural style or design ; and from some subsequent remarks it seems that the author, with all his enthusiasm, has misgivings on this head himself.

The domestic architecture of Cairo is, like so much more Eastern domestic architecture, planned on the principle that the inmates should see and be seen as little as possible from outside. Nearly all the architectural embellishment is towards the interior courtyard ; the external aspect is blank and uninviting ; one of the most striking instances of the reflection in architecture of social feeling. The social and intellectual position of woman in the East is at the bottom of this form of the dwelling-house ; she is not the companion and friend, but the superior chattel or chattels (for it is "*elles et lui*") of the master of the house, to be guarded from other eyes. Mr. Poole mentions one common characteristic of the Cairo house-plan, arising out of this desire for seclusion, the passage leading from the front door being planned with one or two sharp turns, so that no passer-by can look down it when the outer door is open. The only external decorative treatment is generally concentrated on entrance-doors, many of which have been rendered familiar to those who have not visited Cairo, by drawings on the walls of our exhibition rooms ; for painters who travel Eastward find them interesting objects of study. We give an illustration from the pages of the book, by the publishers' kind permission, of a door more simple than many others (No. 1), taken from a sketch by Mr. Wild, but which exhibits in a kind of outline form some of the characteristic methods of doorway decoration ; the square *cadre* of ornament which frames it in, and the peculiar interlocking shape of the alternately light and dark voussoirs. It is in reference to this habit of extracting decorative effect from the treatment of the voussoirs of an arch that we give another illustration (No. 2), that of the arched ornament from the Khān built by the Sultan Kāït Bey (1468-96), whom Mr. Poole styles the prince of Cairo builders. In this arch it will be observed that each pair of voussoirs on either side of the keystone is carved with a different design, the keystone having also its own design. This multiplicity of decorative detail is, of course, a characteristic of Eastern architectural taste in many other localities and styles.

In the chapter on stone and plaster, Mr. Poole notes that plaster ornament is a sign of early date, though, as he says, it is difficult to account for this. "The art of carving marble had certainly been known in Egypt long before the Saracens set about building mosques, and the Copts have marble pulpits and other works of early date. Nevertheless, as a fact, the earlier mosques are generally ornamented with plaster designs." It is curious thus to see the reverse of the usual progress in architectural styles, in which in almost every other case the cheaper and more easily worked material is

No. 2.—Arched Ornament from the Wekala of Kāït Bey.



No. 1.—Doorway of a Private House, Cairo. From a Sketch by Mr. J. W. Wild.

* This fact suggests, by the way, how little part symbolism had in Mohammedan architecture, otherwise the builders would never have adopted this antagonistic form as the basis of their temple. The cross form in the Mediæval cathedral, of course, did not arise from symbolism originally, but it was certainly invested with a symbolic meaning.

brought into use in the decadence of the style. The most perfect example of plaster ornament in Cairo Mr. Poole considers to be the mausoleum of Kalaûn (date, 1284). "Here the borders of the tall arches supporting what was once the dome, the borders of the clearstory windows above, and an infinity of other decorations, are wholly of plaster, and nothing more delicate and lace-like can be imagined. The bud surmounted by leaves again forms a central idea, but it is developed until it is scarcely recognisable, and the designs are chiefly characterised by a broad treatment of large foliage worked round into a scroll-like continuous pattern. Continuity is a leading quality of these designs; it would be difficult to break off at any given point in the borders." The last general employment of plaster in any considerable mosque Mr. Poole believes to have been in the two mosques built by the son of Kalaûn, about 1318.

No. 3.—Lamp of Sultan Beybars II.

The mosaic work of the style in Egypt is apparently a mixture of true mosaic design carried out in small cubes, with marble inlay, a combination susceptible of great variety of effect though, perhaps, not so artistically complete and *sui generis* as the method of pure mosaic. In touching on woodwork Mr. Poole comments on the extensive use made of wood in Cairo, notwithstanding the scarcity of the material on the soil of Egypt and the difficulties by which the use of it is hampered, owing to the effect of the climate on pieces of any size. The leading characteristic of Cairo woodwork, accordingly, is its sub-division into numerous panels, small enough to permit of slight shrinkings without materially affecting the whole work. Some excellent examples of this class of work are to be seen in the South Kensington Museum, notably the pulpit of Kâït Bey (fifteenth century), of which an engraving is given. Tracery bars, in the geometrical patterns peculiar to Saracenic decorative design, with the interspaces carved in small arabesques or more simple ornamental forms, constitute the prevalent form of wood decoration. A good many illustrations are given of the peculiar lattice work in small balusters, as they may be termed, with broader joining pieces, of which there are good examples at South Kensington. The variety of detail in the illustrations given, all based on the same constructive idea, is curious. In point of design they are not all equally satisfactory; the specimen given in fig. 54, for instance, is weak and unconstructive in appearance. Two fine examples are given (figs. 59, 60), in which both the balusters and the intercepting bosses are elaborately moulded, with very rich effect; and one (from the South Kensington Museum) in which the smaller crosspieces are introduced only partially, in such a way as to form a second design or outline on the ground of the more widely-spaced portions.

The early Saracenic work in metal, in Egypt Mr. Poole traces to Mesopotamia, and distinguishes it as the Mósil style,—a style in which much Persian influence is to be observed, and in which the Mohammedan artist has often broken through or neglected the prohibition against the representation of human or animal figures; probably from the influence of the models which he imitated. The characteristic of this early Saracenic metal work is the lavish use of silver inlay. The silver itself, after inlaying, was chased on the surface; and it is mentioned that a noted Saracen metal-worker of Venice, when he made use of the stippling process to retain his silver plates in their places, carried the feeling of the artist so far that he executed all the stippling in graceful scroll patterns (perhaps to keep his hand in), though they would be immediately concealed by the silver plate they were intended to hold; this fine instance of the artist spirit being revealed by the accidental wearing off of the silver in places. The later and more commonly-known Mamlûk class of metal work is more on the usual lines of Saracenic design. One example, an inlaid table, in the Museum at Cairo (fig. 74), was illustrated a year or two ago in our pages, along with one or two other specimens of Saracenic art from the same Museum, from photographs forwarded to us for the purpose by Franz Pasha. The beautiful lamp, decorated with filagree silver inlay, of which we are enabled to give an illustration (No. 3), is an admirable example of metal work of early fourteenth-century date.

There is a great deal of very interesting information in this chapter on processes of metal work and inlay as practised by the Saracenic artists, to which we have not space to refer; and in the chapter on glass we may commend to the reader's attention the remarks on the method of preparing the plaster tracery and stained-glass windows peculiar to the style, of which some examples are illustrated, in engravings which convey admirably the rich jewelled effect of this work.

We have been able to give only an imperfect outline of the contents of this interesting book, which will no doubt become a standard work on the subject of which it treats. The author in his preface pays a well-deserved compliment to the engraver, Mr. J. D. Cooper, for the manner in which the numerous woodcuts have been executed; indeed, it would be impossible to have a book on this moderate scale and size more beautifully illustrated.

THE PALAZZO VITELLESCHI AT CORNETO TARQUINIA.

BY THE BARON DE GEYMÜLLER.

IN two respects the above-named monument is fully worthy of the monograph recently consecrated to its complete illustration by Signor Boffi, a Milanese architect*; firstly, because there are so few examples of similar private residences of Gothic style in Italy; secondly, on account of the interesting process of transformation which took place in the details during its erection from 1435 to 1440.

The number of Gothic private palaces of some importance, which, after resisting the assaults of time and men, have come down to our days in Italy, is not considerable. A certain exception can be made, it is true, for Venice; but the local circumstances of this enchanting, half Oriental city, have produced there a type different in almost every respect from that which existed in the country seats and in the towns of the remaining part of Italy. It may, therefore, be of some interest, particularly to architects in England, if their attention be called to a monument which, judging from my own case, may be unknown to many of those even who have spent some time in the south of the Alps.

If the transformation of parts and details which takes place at every period of transition from one style of architecture to another is rightly considered by architects as very instructive, there exist some peculiar circumstances connected with the revival of architecture in Italy which render this last great transformation in art particularly attractive. In fact, if the sudden rise at Florence of Brunelleschi's style may be compared to the birth of Minerva coming out from Jupiter's head, grown up and in full armour, and if this sudden origin seems to contradict the two opinions generally admitted, that no style can be the invention of a single man, and that no style can form itself without a style of transition, we are, on the other hand, far from possessing yet all the knowledge that might be wished as to the way in which the style of the Renaissance, from its cradle in Tuscany, spread over the rest of Italy.

We know, it is true, that very soon after

* Il Palazzo Vitelleschi in Corneto Tarquinia rilevato e descritto da Luici Boffi, architetto. Milano: Ulrico Hœpli editore Librajo della Real Casa. 1886. Gr. in folio, 29 plates in photo-reproduction from the original drawings. One edition of 100 numbered copies only.

the beginning of the revival several of the greatest Florentine masters, Brunelleschi himself, and Michelozzo, for instance, were repeatedly called to Milan, Ferrara, Venice, as also Donatello to Padua. We know, too, that architects of the second generation went to Rome and Naples,—that Leon Baptiste Alberti resided perhaps more at Rome than at Florence, and stayed for a longer time at Rimini, Urbino, and Mantua. In like manner it is comparatively easy to follow the development of certain styles, such as that originated by Luciano da Lovrana in the palaces of Urbino and Gubbio, brought by Bramante, first to Milan, developed there and, thus modified, transported by the *Lombardi* to Venice ;* yet we are not able to established clearly the connexion between Urbino and Florence. Whence does it come that in the whole country east of the Apennines, from Ancona to Venice and Milan, there appears, from the very beginning, a certain character of ornament distinctly different from what we see in Tuscany? It is impossible that terra cotta alone should have produced this. Is it due merely to a difference of the artistic sentiment and aptitude between the races inhabiting these countries, or to the original influence of some pre-eminent master hitherto insufficiently observed or totally unknown? Did Donatello at Padua, or Squarcione, exercise some particular influence,—did it come from Tuscany or direct from Rome? We cannot say. After all, just as Brunelleschi brought his details from Rome, interpreting them in Tuscany in his own particular way, so some other architect, bringing with him another interpretation of the same forms, might early have taken from Rome the direction of the Adriatic. Even without thinking of the great master of the second generation, Leon Baptiste Alberti, who introduced elements of a different character from those of the Brunelleschi and Michelozzo school, the mere absence of important Roman buildings of the fifteenth century is not sufficient to exclude the possibility of an influence exercised by Rome, different from and independent of the Florentine interpretation. If we are not mistaken, the Gothic forms we still see in the Vitelleschi Palace, as well as those of the Renaissance,—at least, in the principal doorway, are not quite clearly Florentine, as far as we can now ascertain.

It must not be forgotten that soon after its erection between 1445-50, the projected reconstruction of St. Peter's and the Vatican, the celebrated designs made for Nicolas V. by Alberti and B. Rossellino, though their execution was soon interrupted, were the great architectural events of Italy in the middle of the fifteenth century, and certainly exercised a far greater influence than now is generally suspected or easily traced; though these important events had their reflex in the very heart of Tuscany, in the Rucellai Palace at Florence, and in that of the Piccolomini at Pienza, which, as we have acquired pretty clear proof recently, reflect parts of the designs which these two masters together had presented for the new Vatican.

The palace at Corneto was built for Giovanni Vitelleschi, one of those strange figures we meet with in the Italian fifteenth century, first apostolic protonotary, and bishop of Reianati, and Governor of the Marches. He became Archbishop of Florence in the very year he began his palace of Corneto, and soon after Patriarch of Alexandria, and Cardinal.

Before 1434 and 1440 he fought personally for the temporal power of the Pope, winning the fame of a brave captain and a merciless enemy, keeping down Rome under his iron hand. He displayed these qualities to such an extent that he was blamed for it at the Council of Bâle. However, in 1440, five years after the beginning of his palace, having fallen under suspicion of standing in secret alliance with the Duke of Milan against the Florentines, the Pope had him suddenly imprisoned in the castle of St. Angelo, where he died on the 2nd of April from a wound received in a fight undertaken to regain his liberty.

* Signor Michele Caffi has recently proved in the *Arte and Storia* of Florence that the *Lombardi* belonged to the *Solari* family.

These dates, given by Signor Boffi, and confirmed by numerous coats-of-arms, with the cardinal's hat, are important; for they show that the palace as it now stands was really built in the space of five years, fixing thus the exact limits to the modification of architectural forms we are to examine.

At a later period the palace was inhabited nine different times by Pope Leo X. Owing to its situation, as well as the imposing height of the building, the upper loggia enjoys a view of surprising beauty. The panorama comprises the Mediterranean, with Corsica and Sardinia in the distance, the Roman Campagna, as well as that of Tuscany. For a long time it has been the property of the Soderini family, and though complete in almost every part, Signor Boffi writes that it is so much out of repair that the family would willingly part with it for a trifle if it were to come into the hands of those who would have it carefully restored.

Considering the interest of this building, I venture to ask if it would not deserve to attract the attention of the Italian Government and to be classed among the historical monuments? In any case it is saved from oblivion by the careful monograph of Signor Boffi, who, as well as his publisher, deserves praise for this undertaking. Signor Boffi's text is clear and simple, his drawings so numerous and evidently faithful that, without having visited the monument he describes, I have been able to feel myself acquainted with all its parts and the nature of its details so as to judge of its real character and importance. The only point I regret is that, in the execution of his drawings, M. Boffi should have worked too much with his pen in the secondary parts, such as the surface of walls and stones, and, on the contrary, not always given sufficient accent and shadow to the openings of doors and windows; he would thus have spared some time and produced a still more satisfactory effect. However, as it is, his book ought to find access to the principal architectural libraries.*

The scale of the drawings, and particularly of the details, is such as to enable one to make a minute examination of every interesting point.

I now proceed to the description of this monument from the plates of M. Boffi's work.

It is built entirely of *tufo travertino*. In the arches of the courtyards the stones are alternately of this stone and of another kind called *nenfo*, more resembling marble, whilst the columns forming the mullions of the various windows, their bases, and capitals, are of white marble. The columns in the courtyard have granite shafts.

The principal front of the Palazzo Vitelleschi is towards the Piazza Cavour, forming the corner of Via di Castello, which borders it on the left. The narrowest side, *i.e.*, the back, is limited by other buildings extending to the not-distant corner of the Piazza del Duomo. On the right side a neighbouring building borders it for one-third of its length from the Piazza, whilst the remainder faces to the north-east Piazza Soderini. In consequence of these dispositions, the palace, which is about 30 mètres wide and 60 deep, has three façades, and is isolated on the greater part of its contour. The front of the building to the right falling back above the ground-floor, and forming over this a broad terrace, permits the Vitelleschi palace to have a fine window in each of its upper stories, looking towards the entrance close by of the street now called Corso Vittorio Emanuele.

Some parts of the plan show irregularities which, at the first glance, prove them to have belonged to some older buildings. This is particularly evident in regard to the part behind the right half of the front, and also of the furthest portion to the left, where a certain number of smaller rooms belonging to older houses, connected with one of those square towers so frequent in the Mediæval dwellings of the nobles which have been preserved.

* The rather as it was published only in 100 numbered copies.

The three principal features of the palace are the courtyard, opening on the Via di Castello, the pavilion (Padiglione) separating it from the Piazza Cavour and forming the left half of the façade, and under which leads the principal entrance into the court; and, finally, the part of the building occupying the whole right half of the ground.

The courtyard, separated from the street only to the height of the ground-floor by a thick wall crowned by a gallery projecting internally on consoles, is surrounded on the two remaining sides by two stories of galleries of four pointed arches each on the short side, six on the long one. Over this latter rises a third story with a loggia, of which more hereafter. The gallery on the short side has the double object of giving a more regular shape to the court, by covering the oblique direction of the older houses, and of establishing a communication between some of the rooms in them with the remainder of the palace.

The whole length of the ground, forming an irregular quadrangle, is divided into two halves by a central line of communication, beginning at the front with the staircase, continued by the portico of six arches along the court, and ended by the galleria, or corridor. By this means all the rooms are easily accessible, and the very few rooms without separate entrances were not provided with any evidently only because it was thought more convenient they should have none.

The last arch of the courtyard is wider than the others, because in the ground-floor it corresponds to a *rampa a cordoni* (or succession of inclined planes, connected each by low marble steps, similar to the mule paths on the mountains of the Riviera), leading up to a second entrance situated in the angle of the Piazza Soderini, which is on a higher level than the court. The principal entrance, as was said before, passes under the paviliion through a square vestibule with a vaulted ceiling, open in its whole width under an arch supported by two columns, and situated rather to the right of the longitudinal axis of the courtyard, so that by making three or four steps to the right you are at the entrance of the portico and of the stairs, which ascend by the first flight to a landing-place adjoining the front wall, and by the second flight back to a landing-place which separates the stairs from the upper loggia. The disposition of the stairs is the same in every story. Abundant light comes from two windows situated on the front landing-places.

These stairs are remarkably easy, and evidently made for riding up with mules. They have no steps, but a succession of sloping planes paved with bricks, and separated by what the Italians call *cordoni*, of white marble.

On the ground-floor all the rooms are either approaching the square form or about one half of that size. On the first floor, or *piano nobile*, the foremost half of the part to the right, which below was divided by four walls, has but two, and in the second floor one single division. Thus the size of the rooms increases considerably in each story, the largest room being always at the right corner of the palace. On the upper floor the extremity to the right is occupied by a small chapel, preceded by an *anticappella*.

After the description of the general disposition of the palace I will now give that of the more interesting parts in detail, beginning by the principal front on the Piazza Cavour.

The principal front is, perhaps, the most interesting part of the building, and a first glance would induce one, as Signor Boffi rightly says, to attribute it to two different epochs,—we might even say three. However, a close and conscientious examination has shown M. Boffi that this is not the case, for neither in the horizontal direction nor in the vertical can you detect the slightest evidence of an interruption in the course of execution. The only circumstance that M. Boffi would consent to admit would be a change during the five years in the person of the leading architect.

The surface of the travertino wall in the ground-floor is quite even; its height and its few openings protected by iron railings give it

a fortress-like appearance, whilst the two upper stories are rusticated in that flat manner which is exhibited in the somewhat later palaces of the Rucellai at Florence, and the Piccolomini at Pienza, and by Bramante's two palaces at Rome. The appearance of belonging to two periods arises from the following points in the disposition and design. On both extremities the windows rest on a cornice lying in the same level, but in the centre the stories seem lower and on a quite different level, and both cornices on reaching this part have a vertical drop, and pass under these lower windows. This interruption of the level is produced by the staircase being lighted at each landing-place by two windows, each separated by a column. To the right of this central architecture only three very large and beautiful Gothic windows exist, two on the first floor, one on the second. These two parts of the façade are crowned by the same cornice, very effectively composed of small Gothic arches resting on corbels, projecting three times, one beyond another, and very much resembling that of Or San Michele at Florence. The left part of the façade, the so-called pavilion, shows only Renaissance forms in all its parts, in the beautiful entrance-door; above it, in the first floor, a large round-headed window, and in the second floor two broad windows separated by two columns, each bearing architraves. These are the characteristic forms of the second story, and run around the three sides of the pavilion, and along the courtyard, where they are still broader, so as to have three columns in each; and as the piers of masonry separating these windows have the breadth of an inter-columnium, we obtain thus a real upper loggia with stronger supports at equal distances, and the effect resulting from the straight line of architraves is not only peculiar to this palace, but a very rare feature at that time, when we may in cloisters meet with wooden beams supported by columns with or without wooden corbels, but hardly with stone beams bearing the not inconsiderable height of the remaining wall under the cornice, which in the pavilion and around the court is more than three mètres lower than the one first described.

The architecture of the court consists of two galleries of pointed arches, the voussoirs being alternately of two different contours; the shafts of the columns are granite; the capitals of white marble. The capitals are everywhere of a simple Gothic type, with thick leaves, different from the Corinthian type, and in the upper loggia they are much broader than their height, in order to give better bearing to the architraves. The mouldings of the archivolts, bases, and cornices are throughout Gothic. The cornice above the ground-floor consists of elegant pointed small arches resting on a double tier of corbels, and forming the parapet of the upper loggia.

The front of the right side, consisting of two distinct parts separated by the neighbouring building, is less remarkable. The part looking on the terrace before the latter building has, in the upper story, a fourth beautiful Gothic window like those on the principal façade, and a round-headed one below. The part looking on the Piazza Soderini shows the side entrance to the court,—in the first story large windows of the seventeenth century; and in the second story, besides three Gothic windows, part of the curve of the apse of the little chapel is seen, projected on corbels connected by small arches. Above the roof, a stone pointed arch under a gable received a bell, and a single round stone chimney with a cornice on arches and corbels is to be seen on this side.

The details of the interior consist in the visible roof of the pavilion, decorated in form as well as in colour, on the principle we see in St. Miniato, near Florence, or in the Cathedral of Messina. In horizontal projection the principal beams form two intersecting crosses, rectangular and oblique. Then there is a wooden vault in the ante-chapel, in the form of a flat coffering, with some paintings, among which the Vitelleschi coat of arms is reproduced in colour; these arms, with the cardinal's hat, and containing two calves (*vitelli*), are very important as dates for the different parts of the palace, and confirm, in fact, the conclusion that it really was built between 1435 and 1440.

The single large chimneypiece preserved, as well as the fountain, are shown on plate 16.

Having thus sufficiently described the general disposition of the palace, and the principal forms which compose it, we are now better able to point out briefly the process of transformation which took place also in the details during the building of this monument, and which gives it the transitional character so instructive as illustrating one of the ways by which the new forms gradually superseded those of the expiring style.

Whether we admit the existence of a single guiding architect who, during the course of five years, gradually transformed his style, according to this increasing knowledge of the new forms, or whether we admit the succession of two masters, of whom the second was nearly as well acquainted with the forms of the Revival as was then possible, one thing is certain, the two galleries of the court, and the four beautiful Gothic windows of the right part of the façade, are entirely Gothic in their forms and details. The two cornices are built on the machicolated principle, but only for the sake of lightness; the arches are not only not projecting enough to give room for throwing down any projectile, but the openings for that purpose were covered by a course of stone from the very beginning. The general design of these four windows is the same, consisting of two mullions in the shape of twisted marble columns supporting the tracery, delicately-sculptured in *nenfo*, formed by three circular or wheel openings of different arrangement, but very pleasing in effect, recalling somewhat those by Michelozzo in the corridor leading to the chapel he built for Cosimo Medici, in Santa Croce at Florence. However, in two of these windows (pl. 19, 20, upper story looking towards the terrace, and pl. 25 in the first story), the columns of the mullions have Ionic capitals, two others are intended to be composite, and as the desire to give antique proportions to these columns made them shorter than the Gothic ones of the jambs of the window, an abacus (meant perhaps to be an entablature) is put on their capitals to attain the height of the springing of the arches. The ornaments round the archivolts show a progress in the direction of the revival forms.

If we now pass to the windows lighting the staircase in the middle of the front we see the movement of transition is far more advanced. Of the seven windows which in five stories light the landing-places, each story shows a different design. The lowest window and the two next divided by columns have square dressings, the latter being rusticated. Those in the third story (we reckon there the landing-places as stories) are likewise rusticated, but the windows are finished in the shape of two pointed arches resting on the column in the middle. In the two windows above the arches are round-headed, and have received a common rectangular frame with medallions and half medallions in the spandrels, being thus quite in the Renaissance style. The uppermost has a square architrave without any column.

The shafts of the dividing columns are smooth or twisted and once fluted, but the capitals are still Gothic, and in one case with a rectangular abacus like those described in the upper loggia, proving them to be made under the guidance of the same architect.

Passing finally to the details of the pavilion, I mentioned already the large round-headed window. It has on the outside of the archivolt, at each springing, one rose ornament, and on the summit an acroterion between two others, completing thus a system of decoration extremely frequent over arched doorways and frames of the fifteenth century in Tuscany. But the most striking detail of the whole palace is certainly the beautiful entrance-door; this is of a form so perfectly antique in every part that the popular opinion at Corneto believes it to have been brought here from some ancient building at Palestrina,—an opinion however, as M. Boffi rightly observes and proves by his drawings, entirely unfounded.

The rectangular opening is 2·70 mètres wide and 4·20 mètres high. The cornice over the frieze is supported at each extremity by two consoles of beautiful design, and its projection between these by much smaller consoles, producing thus a very pleasing as well as original effect. These smaller consoles and the shells which ornament the panels between them, are repeated under the sloping cornice of the pediment, which, in its centre, shows the Vitelleschi coat of arms, with the cardinal's hat and other emblems of his arms.

The front of the corona in the horizontal cornice is ornamented with a line of shell forms, inscribed in circles, and the cyma of the raking cornice shows an enrichment of laurel leaves, flowers, and fruits, twisted and bound by a ribbon. Some very slight Gothic recollections in a few of the leaves, and the diamond-pointed shape given to the dentils, are the only remains of Mediæval feeling, not sufficient to disturb the beauty of the design, but sufficient to prove its execution for Cardinal Vitelleschi. I may say that at Florence there exists no specimen of a door of this type and of equal interest, nor, perhaps, at Rome either.

Thus, in conclusion, the Palazzo Vitelleschi is one of the most striking specimens of the passage from forms entirely Gothic to those of Classic art. It illustrates one of the modes by which such transitions of style are effected, and proves clearly in how short a time (only five years), under certain circumstances, such a considerable change can take place. We are in presence of what must be admitted to be an entirely Gothic plan and a Gothic conception of the whole, executed first in Gothic details nearly pure, which all at once begin to be influenced, it would seem, by stone-cutters desirous to exhibit the few notions of new forms they happened to have picked up. Soon we see entire parts, such as doors and windows, struggling both to get rid of the old forms and to acquire the new. It seems as if the master-mason or guiding architect were anxious to produce as many of these new forms as he could obtain.

Finally, we see the principal doorway, antique in every part, retaining only such traces of Mediæval detail as are sufficient to prove that it really was executed at that date, and not taken from some antique monument. It is finally interesting to observe that the general plan, though entirely Gothic, contains all the features and characteristic elements of the palaces and villas of the Renaissance during the fifteenth and first thirty years of the sixteenth century.

HENRI DE GEYMÜLLER.

NOTES.

THIS journal has nothing to do with the political aspects of the General Election, but certainly it is much to be desired that it should result in the establishment of a strong Government, and put an end, for some time to come, to uncertainty as to the government of Ireland. Such uncertainty as now exists is fatal to the proper employment of capital and to the prosperity of industrial undertakings. Again, in this country, if a new Government results from the Election, there will be a new First Commissioner of Works, making the fourth within a year. Such change of the head of this department leaves it entirely in the hands of the permanent officials, and likewise puts a stop to the carrying out of important works, such as the erection of a new National Portrait Gallery. It is the same all along the line; the disputes and strivings of politicians for place are entirely adverse to the general interests of the whole community.

WE have to thank the quarrel lately got up in the columns of the *Times* ("quarrel" it must be called,—the chief disputants losing their tempers all round) about the durability of water-colours, for the getting up also of a most interesting exhibition at the rooms of the Water-colour Institute, whereby Sir James Linton desires to practically

refute the audacious blasphemies of Mr. J. C. Robinson in regard to water-colour painting. As far as the collection goes, it thoroughly supports Sir James Linton's contention that water-colour drawings are by no means necessarily faded and gone in twenty or thirty years, as Mr. Robinson rashly averred. Here are drawings a considerable number of which have been in existence a great deal longer than that, and which are obviously unimpaired in their main qualities; drawings by Varley, De Wint, David Cox, W. Hunt, and others, which bear satisfactory evidence in Sir James's favour, and those of Barrett, perhaps, as much as any, since Barrett aimed at rich and bright sunlight effects, and there is certainly no reason to think that the drawings by him that are exhibited here,—a very fine set by the way,—were ever brighter in effect than they are now. There are some very fine small Turners, which do not look as if they had faded; but we do not feel quite so positive about all of them. W. Hunt's fruit-pieces are as brilliant as if painted yesterday. But one of the most notable instances of the stability of water-colour is shown in the church interior by De Witte, 217 years old, and painted (naturally at that period) with a very limited palette. This drawing is as sharp and clean in its lights and shadows as possible. At the same time we may conclude, like Sir Roger, that "much may be said on both sides." Mr. Robinson was much too sweeping in his statements; but, on the other hand, the collection of a roomful of water-colours that have not faded does not prove that water-colours are never liable to fade; and the tone of Sir James Linton's remarks on the subject savours a little too much of a feeling "that this our craft is in danger."

THE value of petroleum as fuel for marine purposes has been, not for the first time, pointed out in a paper recently read by Colonel Stevens at the United Service Institution. The advantages are so obvious in the case of navies and mercantile marines that it is a wonder that no practical efforts to utilise it on a large scale have not been made long before this, particularly as the area of the oil-beds has so enormously increased of late years. American petroleum and its extraordinary abundance is now a matter of history, but the American monopoly has been quite disposed of by the Russian discoveries on the Black Sea, and those in Germany, Hungary, Egypt, and other countries. Apart from the facility and cheapness of generating steam, petroleum particularly recommends itself by its portability and adaptation for storage, which in itself effects a tremendous saving in the sea-room of large steamers, besides a great saving of time and labour in coaling operations, which are frequently inconvenient, entailing a considerable diversion of route to reach a coaling station, and which are always dirty and unpleasant. On all occasions these economies would be worth attention, while in case of war they would be accentuated a hundredfold. Petroleum, as used for this kind of fuel, with its benzoline and gasoline distilled and its volatile constituents taken away, is a safe material even under tolerably high temperatures, and is very different to the petroleum and petroline which now and again alarm the British householder by an explosion of the family lamp.

WE have received an interesting report from Mr. Aldwinckle in regard to an experiment which has been made, under his direction, in finding relief work for men out of work, in preparing the ground for the new buildings to be erected in connexion with the Wandsworth and Clapham Union Workhouse. This was not work invented for the purpose of giving relief (which is a most undesirable expedient), but work which had to be done, and on which it was possible, under proper supervision, to employ unskilled labour. Each applicant for work had to produce an order from the Relieving Officer of his district, vouching that he was a deserving man; and on the work being opened on February 22, 200 men presented themselves with the requisite orders,—the full number sanctioned by the Guardians, though it was afterwards extended to 250. About 150*l.* worth of contractors' plant was first purchased, which will be available for future use in other cases. The work done included such matters as surface digging to form yards, excavating, filling in concrete and building footings, &c. 3½d. per hour was paid, and the loss, over an expenditure of about 1,400*l.*, only amounted to 29*l.* Mr. Aldwinckle adds:—

"The establishment of these relief works enabled the Guardians to ascertain, in the most practical manner possible, the extent to which exceptional distress actually existed in the Union, and although in various parts of the metropolis there were varying opinions as to the existence of such distress, it became evident that in this Union there was a great pressure among a large number of the unemployed. The fact that, as reported from time to time by the relieving officers, twice as many men could have been put upon these works, had it been possible to find them work to do, is the best evidence that considerable distress existed. I have also ascertained from the relieving officers that the large majority of the men employed had not in previous years received any assistance from the Guardians. This shows, I think, that the Guardians were able, through the means of these relief works, to assist many who were, so to speak, somewhat out of the ordinary scope of the Poor Law, and to do so in a way that would not in any manner pauperise them, or destroy their sense of independence."

EGYPT has been the scene of some remarkable antiquarian discoveries, but few of more interest than that recently made in one of the Deltas of the Nile by Mr. Flinders Petrie of a royal palm, known in Biblical language as Pharaoh's house in Tahpanes, and locally as the "Castle of the Jew's daughter," which is mentioned in Jeremiah as the resting-place of the fugitive daughters of Zedekiah. The building, in general appearance, somewhat resembles the Norman keep of Rochester, and it contained sixteen chambers on each floor, of which there had evidently been several; while, attached to the tower, was an area of brickwork resting upon sand, which was actually the scene of one of Jeremiah's prophecies. It could scarcely have been expected that a building 2,550 years old should reveal many remains within its precincts; but from the mound at the base a very fair number of domestic relics were obtained, principally belonging to the kitchen, such as jars, dishes, pokers, corn-rubbers, together with a vast number of amphoræ lids and covers, in a chamber that was presumably the butler's pantry. Other chambers yielded remains that were not altogether so utilitarian, and these included early Greek vases of the date 600 B.C., with paintings of sphinxes, processions, chariot races, &c.; while from underneath the four corners of the tower were exhumed sacrificial bones, tablets, rings, and other small matters, evidently constituting the foundation deposits of its builder, Psammetichus I. The other antiquarian event, equally interesting in its way, was the unveiling at Boulak of mummies by M. Maspero, Director-General of Egyptian Antiquities,—and, in particular, those of Ramesis II., Seosostris, and his successor, Ramesis III. A third mummy, which was in a very bad state of putrefaction, proved to be that of Queen Nofretari, whose worship was very popular at Thebes. She was always represented in pictures by Egyptologists as a negress, but from her remains it was evident that she was of white race.

THE judgment of the Court of Appeal in the case of Ford *v.* The Metropolitan and Metropolitan District Railway Companies clears up a doubt in regard to the law of compensation for injury to property by railways and other undertakings. That doubt was raised by the well-known case of Rickett *v.* The Metropolitan Railway Company, in which some expressions of Lord Chelmsford gave rise to the impression that compensation could not be granted for injury done in the course of construction of the works, but only for injury by the works when finished. Messrs. Woolf & Middleton, in their work on the law of compensation, lay it down that "the injury must be of a permanent nature and not a mere temporary inconvenience." This, it is clear, is not the law. "The right to compensation," says Lord Justice Cotton, in the case to which we are alluding, "ought to include also injury caused to the house not only by the works when finished, but by the exercise of the powers of the Act in the course of putting up those works." It is unnecessary to refer to the facts of the particular case. The important part of it is the rule which we find is clearly laid down, that what the Master of the Rolls calls the "exceedingly strange proposition" that compensation cannot be granted for injury only existing during the continuance of the work, is not good law, but that, on the contrary, an arbitrator must take such injury into account and award compensation in respect of it.

AN important addition is to be made to the already most valuable collection of architectural casts at the South Kensington Museum in the form of a colossal one of the centre portal of the western façade of S. Petronio at Bologna. It may be remembered by our readers that it was accepting the commission for this doorway that ruined the peace and quietness of Jacopo dalla Quercia's life, for he was at the time already under a contract with the Opera del Duomo at Siena to finish the baptismal font now in S. Giovanni in that town. His whole heart, however, was in the sculptures of this doorway, and he was continually slipping away from Siena to work at them, and having to be recalled from Bologna under penalty of a heavy fine. It will not be long before our rising young sculptors will be able to study these *bassi-relievi* in London, just as the great master himself, in his youth, studied from the originals at Bologna. Permission to take this cast was obtained through the Accademia delle Belle Arti at Florence, who have confided the task to Signor Orunzio Lelli, also of Florence, and a scaffold just erected before the portal testifies to the undertaking having already been commenced.

AN operation as extensive as it is novel has just been completed at Berlin, where the old roof of the New Museum has been removed and a new one erected in its place. In order to remove the former covering of the several rooms of the great building, the work of Schinkel, without exposing the treasures it contains to the influences of the atmosphere, and consequent destruction, it was necessary to construct a temporary roofing, which was a work of constructive art by itself. Thus protected, the contents of the museum were safe against injury, and the work of erecting the new roof has proceeded uninterruptedly for more than nine months. The new roof consists of iron girders with vaults between. The vaults are made of wood cement, covered by a simple layer of paper. Outside the roof has received a cover of macadam, which is considered by German architects as the best protection against fire from without. The old roof has stood since 1823, but it was no longer in accordance with present views as to safety against fire.

AMONG the picturesque pilgrimages in the neighbourhood of London, that to Beaconsfield, in Bucks, is not an unusual one, for here is seen the burial-place of Edmund Burke, and the grave of Edmund Waller, the poet and politician of the Commonwealth and the Restoration. A correspondent informs us that the lettering on Waller's tomb is in many places almost illegible. This is not as it should be. One may doubt whether it is desirable to cover a tombstone with panegyrics and a biography, but when they are there they should be kept legible and in good condition. Waller's tomb is a historical memorial, and Magdalen College, the patrons of the living of Beaconsfield, should take care that it is not allowed to be neglected.

THE first number of the *Jahrbuch des Kaiserlichen Deutschen Archäologischen Instituts* (1886) has just appeared. It is the successor to the time-honoured *Archäologische Zeitung*, whose final number we noticed a week ago. The new periodical gives a large

amount of its space to antiquities in our own museum. Dr. Paul Wolters publishes in a fine phototype plate two marble heads of the British Museum, which he holds to be Praxitelean in style, and which he thinks have not received the attention they deserve. One is from the collection of the Earl of Aberdeen, the other from the Townley collection. Both are catalogued in the "Guide to Græco-Roman Sculptures," but Dr. Wolters thinks they are genuine Greek work, of the time of Praxiteles. It remains to be seen if in a new edition the authorities of the Museum will adopt his suggestion. The most important paper is one by Professor Michaelis on the so-called "Ephesian" Amazon statues; he publishes the Petworth Amazon in two beautiful plates, and the Museum head side by side with the Berlin Amazon, to which he believes it to be near akin. His paper should be read in detail. We can only note that he brings together no less than thirty-five instances of these allied Amazon types, all of which he groups under three heads, according to the pose and the disposition of the drapery. We may call attention also to an interesting paper by Dr. Conze on the famous bronze "praying boy" of Berlin. He shows that both arms are modern, but believes them to be rightly restored. In the same number is published the curious bronze votive frog to which we drew attention last week. The *Jahrbuch* follows, we are glad to see, the example of the American *Journal of Archæology* in devoting part of its space to a *résumé* of current archæological bibliography.

WE are glad to find that the most important of the Tegea heads (whose transportation from the local museum at Piali to Athens we noticed some weeks ago, is carefully published in the latest number of the *Ἐφήμερις ἀρχαιολογική* (1886, i., plate 2). The head had appeared before in the *Mittheilungen* of the German Institute, but since it has received its missing half, which had been built into a local wall, it now well deserves the phototype plate devoted to it. Mr. Murray, long ago, in his "History of Greek Sculpture" (ii., 291), conjectured that the head, though wearing a helmet, had belonged to a woman. Only one woman was present at the hunt of the Calydonian boar, and certainly Scopas would not omit her from his composition,—the maiden huntress, Atalanta. Of course, it is not quite certain that the head comes from the front pediment, nor is it usual for Atalanta to be characterised by a helmet, as she is huntress rather than warrior. Though sadly mutilated, especially about the mouth and right eye, enough remains to give clear evidence of the pathetic character of the expression, and it harmonises generally with what we should expect from literary traditions of the style of Scopas. The plate is accompanied by a short notice by Dr. Kabbadias.

ON Thursday, the 17th ult., there was a meeting, in Rome, of the Commission for judging the premium in the competition for the equestrian statue to be placed on the grand national monument to Victor Emmanuel; but after an animated discussion the meeting was adjourned. It appears that the difficulty arose from the fact that none of the sketch-models submitted exactly fulfil the conditions of the competition, one part of the Commission maintaining that no premium should be awarded, while the other held that there were among the competing sketches some that well merit being carried into execution.

DURING the excavations that have been going on for some time among the ruins of the Villa Casali on the Cœlian Hill the workmen have discovered a portion of a Marble group representing the punishment of Marsyas. The group is of special interest, as it is quite differently conceived from the ordinary type of the subject, as it appears, *e.g.*, in the statue in the Conservatori Museum. Marsyas is bound to the tree, his right hand fastened above his head, his left hanging down. He is leaning his head on his right shoulder in an attitude of quiet suffering,—his hair and beard are long, but there is nothing of the usual rough, Satyr character about the face. The whole weight of the body is inclined to the right, not, as in the usual type, evenly balanced. The group is in bad preservation, almost the whole of the two arms are missing, the right leg and the left as far as the thigh. On this left thigh there still remains the hand of another figure.

THE excavations proceeding on the Janiculum have led to the discovery of a number of Roman lamps, which are of more than average interest on account of the mythological subjects which decorate them. On one Ulysses appears escaping beneath a ram from the cave of Polyphemus; on another, Hercules fighting with Geryon; on a third, the same hero contending with the Hydra; on a fourth, the figure of Fortuna seated holding the helm of a ship in her right hand, and a cornucopia in her left.

A FINE marble group, representing the three Graces, has just been unearthed during the re-building of a house in the Via Torre dei Conti. The group is about three-quarter life-size, and represents the goddesses in their typical attitude embracing each other, two of them facing, the middle one with her back to the spectator, like the well-known Graces of Siena. At either side of the group stands a vase, over which some drapery is hanging. All three heads are wanting, but there is hope they may yet be discovered, as the marks of fracture are evidently recent. The *Bulletino della Commissione Archæologica* (1886, Fasc. 4) reports that the style of the execution is fine, and that, save for the heads, the group is marvellously well preserved.

WE have received the second part of the re-publication of Leech's *Punch* sketches which Messrs. Bradbury, Agnew, & Co. are bringing out. It contains many old favourites, and illustrates Leech's humour (in the literary descriptions as well as in the drawings), and his ease and lightness of touch, and power of conveying character in a few lines. At the same time, one cannot help feeling that the style borders occasionally too much on caricature; in this respect, Mr. Keene and Mr. Du Maurier (the former especially) can claim a certain advance on their clever and genial predecessor.

THE key presented to her Majesty on the occasion of the opening of Holloway College, an engraving and description of which have been forwarded to us by the makers ("Chatwood's Patent Safe and Lock Company"), together with their own opinion on their own work, is an unhappy example of the kind of thing which passes current with the British public for artistic design. The key is of gold, it is true, and about 300 diamonds have been inserted in it; but gold and diamonds do not make art. The design is a piece of the most ordinary commonplace, and the connexion between the shaft and the handle so entirely *without* connexion (so to speak) as to suggest the idea that no one could turn the key without breaking the handle off from the stem. Yet this precious affair, the makers of it have the assurance to tell us, "is a masterpiece both in design and workmanship." The workmanship we do not contest; but before next puffing their own wares in this way, Messrs. Chatwood & Co., or whoever is responsible for their circular, had better study a little real artistic metal work,—Indian or Mediæval, for instance,—and get some competent person to explain to them something about the elements of artistic design. They may then learn to understand that gold and diamonds do not make art, and that many a wrought-iron key is worth infinitely more, to the eye of an artist, than this costly piece of gimcrack.

Proposed Circus at the Junction of the Strand and Wellington-street.—Mr. Runtz has given notice that at the meeting of the Metropolitan Board of Works this Friday, July 2nd, he will move:—"That it be referred to the Works and General Purposes Committee to consider and report upon the desirability of the Board applying to Parliament in the next Session for power to form a circus at the intersection of Wellington-street and the Strand."

LETTER FROM PARIS.

WHEN these lines appear, after two laborious weeks spent in discussing the route and the mode of execution, the Municipal Council of Paris will have finally settled the Metropolitan Railway question. The operation will then only await the Parliamentary vote to enter on the stage of execution, and we can now indicate in detail the scheme which will so greatly modify the aspect of Paris and metamorphose its habits and local transactions. It is to be hoped that after all this delay the work will be so actively pushed on as not to leave Paris, at the time of the 1889 Exhibition, in the position of a great "chantier de démolitions," which is rather to be feared.

The scheme which is to be approved comprises first a circular line starting from the Place de l'Étoile and returning there after passing near the Place de Clichy, the Gare du Nord, the Places de Strasbourg, de la République, and de la Bastille, the Place Mazas, the Boulevard de l'Hôpital, the Place and the Boulevard d'Italie, the Boulevard St. Jacques, the Places Denfert-Rochereau and de Rennes, the Boulevard de Grenelle, and the Trocadéro, crossing the Seine twice in its route. This first line, which will follow that of the old outer boulevards, will be an open cutting between the Trocadéro and the Boulevard Barbés; the remainder will be on a viaduct.

A line starting from the above-mentioned one at the Place de Strasbourg, will pass by the boulevards de Strasbourg, de Sebastopol, near the Hôtel de Ville, and by the boulevard St. Michel to join the Place Denfert-Rochereau. All this portion will be in a tunnel, excepting for the ventilating spaces, which will form small squares like those in the Boulevard Richard Lenoir, above the canal St. Martin.

Then comes a third line, leading from Batignolles to the Place de la République. This will pass by or near the Place de l'Opéra and the Place de la Bourse, by the Rue Septembre 4, the Rue Réaumur, and the Rue Turbigo, with junctions at its two extremities, with the aforesaid circle line. This portion of the route will necessitate the prolongation of the Rue Réaumur, between the Boulevard Sébastopol and the Place de la Bourse,—the busiest and most crowded centre of Paris. This is an important piece of new road work, opening a considerable breach in the Montmartre quarter; less important, however, than the eventual establishment of a line from the Gare St. Lazare to the Gare du Nord, by way of the Square Drouot, in the midst of the most aristocratic portion of the Boulevard Haussmann, and the Chaussée d'Antin. Whether this will be subterranean (as the Municipal Council demand) or aërial, is the question, and there are so many different interests concerned in it that one cannot predict what the decision of the Chambers will be.

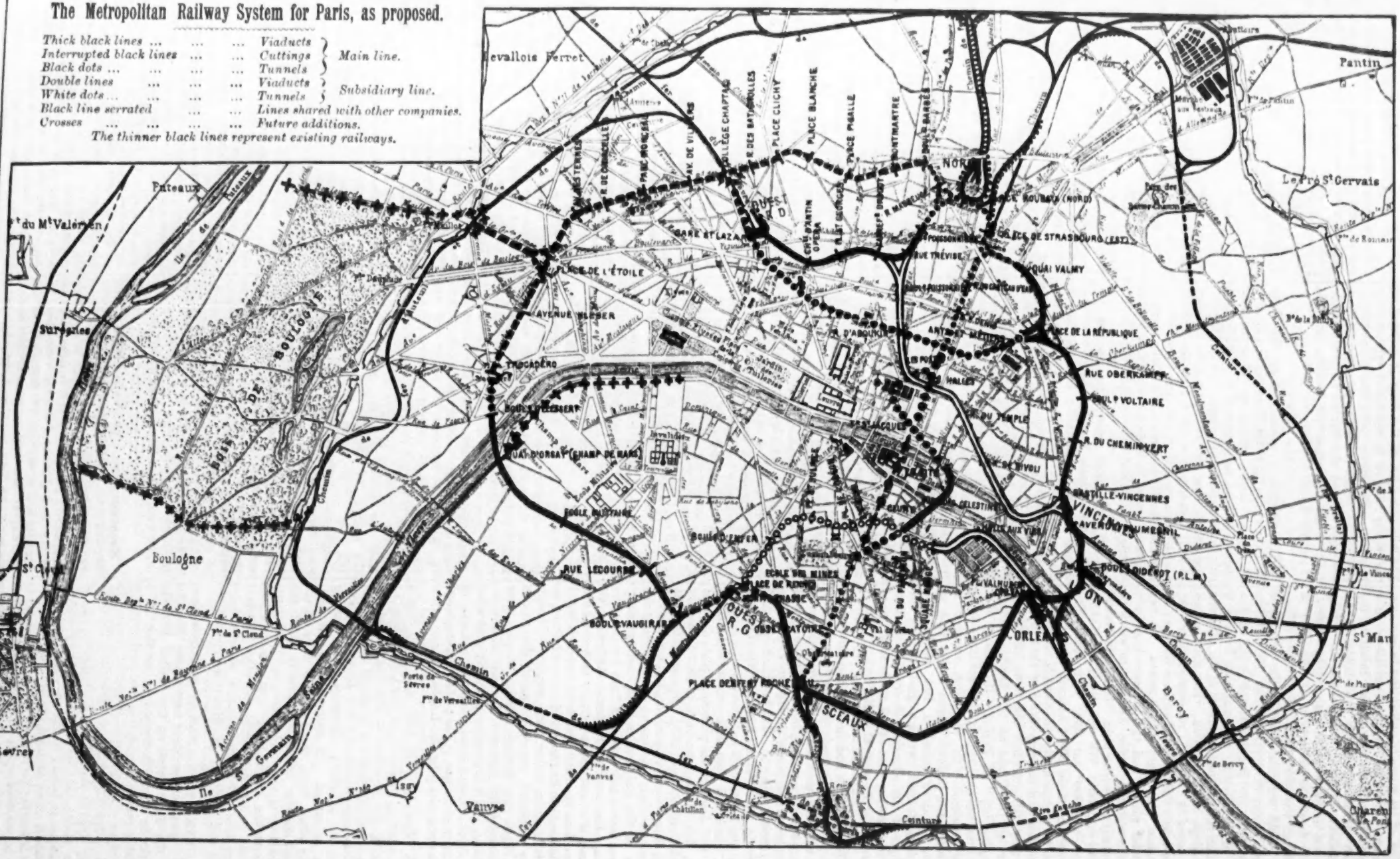
The project includes two other lines of future extension, the one branching off at the Square Drouot, and joining the Gare Mont Parnasse by the Halle aux Vins, the Square Monge, the Place St. Sulpice, and the Place de Rennes. Lastly, one other short branch is to start from the Porte Maillot, to join the outer circle at the Place de l'Étoile.

Such is the general project that has been adopted, of which we give a plan in the present number. Unfortunately, in a city like Paris, such an immense scheme cannot be carried out without here and there destroying some of the old associations dear to artists; and, as we have already said, the archæological world is greatly disturbed at the danger with which the route threatens certain edifices, especially the old palace of the archbishops of Sens, already much disfigured through the inroads of business premises, and shorn of its ancient splendour since it was invaded by confectionery manufactories. M. Charles Garnier has, with his usual energy, constituted himself the defender of these vestiges of a former age, without much hope, however, of converting the engineers, who, as a rule, do not pique themselves much on archæology. In view of the demolition of the hideous barracks occupied by the Administration des Postes, in the Cour du Carrousel, M. Garnier has also been commissioned by the Government to prepare a plan for the transformation of this large space into a square in which will be arranged the best works in sculpture purchased by the State during the last few years. This open-air museum of art will suitably surround the

The Metropolitan Railway System for Paris, as proposed.

Thick black lines	*Viaducts*	*Main line.*
Interrupted black lines	*Cuttings*	
Black dots	*Tunnels*	
Double lines	*Viaducts*	*Subsidiary line.*
White dots	*Tunnels*	
Black line serrated	*Lines shared with other companies.*	
Crosses	*Future additions.*	

The thinner black lines represent existing railways.


Levallois Perret
Pantin
Le Pré St Gervais
Puteaux
Pt du Mt Valérien
Suresnes
Boulogne
St Cloud
Sèvres
Vanves
Issy
Clamart
Bagneux
Châtillon
Montrouge
Malakoff
Arcueil
Gentilly
Bicêtre
Ivry
Charenton
Vincennes
St Mandé
Bercy
Pont de Passy
Pont de Grenelle
Pont de Bir-Hakeim
Pont de Solférino
Pont de la Concorde
Pont Alexandre III
Pont des Invalides
Pont de l'Alma
Pont de Jena
Pont de la Tournelle
Pont Marie
Pont de Sully
Pont de Bercy
Pont National
Pont d'Austerlitz
Pont de la Gare
Pont de Tolbiac
Pont de Charenton
Pont de Conflans
Pont de Vincennes
Pont de Nogent
Pont de Joinville
Pont de Créteil
Pont de Choisy
Pont d'Ivry
Pont de Vitry
Pont de Villejuif
Pont de Sèvres
Pont de Billancourt
Pont de Suresnes
Pont de Neuilly
Pont de Courbevoie
Pont de Puteaux
Pont de Clichy
Pont de Levallois
Pont de Saint-Ouen
Pont de Saint-Denis
Pont de Gennevilliers
Pont de Bezons
Pont de Chatou
Pont de Rueil
Pont de Nanterre
Pont de Courbevoie
Pont de Neuilly
Pont de Suresnes
Pont de Billancourt
Pont de Sèvres
Pont de Vanves
Pont de Clamart
Pont de Meudon
Pont de Sèvres
Pont de Saint-Cloud
Pont de Boulogne
Pont de Suresnes
Pont de Puteaux
Pont de Courbevoie
Pont de Neuilly
Pont de Levallois
Pont de Clichy

pretty little Arc du Triomphe of the Carrousel, at present out of its element amid a mass of all kinds of *débris*. One can have nothing but praise for this project, which will produce a fine and effectively-laid-out open space backed by the imposing mass of the Louvre and what remains of the Tuileries. But in that case, Government must take serious measures to put a stop to such injuries as the stupid "public" inflicts constantly on the numerous and really fine statues which occupy the gardens of the Tuileries. These acts of Vandalism have become so serious and frequent that the Government, after having granted to the Municipality for some years past the site on which the road from the Rue de Rivoli to the Pont Royal has been formed, has recently threatened to remove all the works of art which are its property, if these mischievous acts are continued. As the Municipality on their side refuse to put up railings along the road, there seems to be a conflict likely to arise out of the unwillingness of the Parisian public to respect the national property.

Not far from here, and behind the future square of which M. Garnier is studying the plans, is already rising the monument to Gambetta, which it is hoped will be inaugurated next year. While the architect, M. Boileau, is pushing forward the work for the pedestal, the sculptor, M. Aubé, is not less actively occupied with his portion of the work. The figure, in stone, of Gambetta, is in an advanced stage; and the model of one of the two side figures, symbolising "La Vérité," will soon be completed. The other figure, personifying "La Force," is also nearly completed. Both will be cast in bronze, as also the group of children, and the lion which crowns the pyramid. As an official inauguration must always coincide with the national fête, the statue of Diderot, by M. Gautherin, on the Boulevard St. Germain, at the corner of the Rue de Rennes, will be inaugurated this year. It is a mediocre work, and we much prefer another Diderot statue, by M. Lecomte, which in a few days will be placed, unostentatiously and with no official ceremonies, in the new Square d'Anvers, along with another statue by the same artist. Between them will stand an allegorical statue of Peace, which the Administration has commissioned from M. Jules Coutan. We are also expecting soon the inauguration of the statue of Lamartine, long delayed, by M. Marquet de Vasselot. It will be erected at Passy, not far from the residence of the poet, in the *place* which bears his name. We may announce also, as fixed for the 17th of October, the inauguration of the statue of Berlioz, of which we recently gave a photograph. During the ceremony an orchestra and chorus is to perform a hymn by Berlioz, composed for the inauguration of the Colonne de Juillet, and which has never been performed since 1840.

We are approaching the season which is the dread of Parisians who love quiet, and who are in the habit of flying from the city before the crowd of provincial visitors who are attracted by the national fête, which takes place in a few days. The preparations, already made, come so little into our scope that we should hardly mention them except that the firework display in the Champ de Mars (the last, probably, that will be held there for some time) has a sort of special interest, as it has been arranged by M. Lavastre that the principal "piece" should give the outline of the projected exhibition palace, with the great basement for the colossal tower of M. Eiffel. For the tower itself M. Lavastre has substituted a figure of France distributing palms and crowns. We only wish the Government would adopt this economical and much more decorative variation, in place of the monster tower which threatens us.

We may observe here that public opinion is showing itself generally refractory in the matter of that same tower. We need not repeat our criticisms on the æsthetic view of the project. Practically, its execution will be very difficult, and people are even asking how the public are to get up to the top of it. As it is impossible to work a single lift for an elevation of 300 mètres, M. Eiffel's plan comprises a series of lifts of about 30 mètres each journey, so that the visitors will have to pass from one cabin to another ten times in the course of the ascent. This in itself should be enough to condemn this project of an iron merchant to turn his materials to account.

Since our last letter, the jury of the *Salon* have distributed their final awards. It is a painter, M. Marec, who has obtained the "Prix du *Salon*" for a realistic and violent work representing a scene in an artisan's dwelling the day after "pay-day." In the architectural section the much-envied prize has been carried off by MM. Marcel and Lafon for the interesting study for the restoration of the Hôtel de Bourgtherolde, of which we have already spoken.

The Académie des Beaux-Arts, on its part, has awarded the Deprez prize. It has selected for this honour a young and conscientious artist, M. Escoula, from whom the Municipality purchased, two years ago, a pretty group in marble, entitled "Bâton de Vieillesse." Lastly, to finish with public competitions and official rewards, MM. Emile Reiber, Henri Saladin, and Jacques Galland, all young artists, have been premiated by the Government in the competition for the execution of the Beauvais tapestries intended for the Musée du Louvre.

The Government has now settled the complete list of painters commissioned to execute the interior decoration of the new Sorbonne. For the grand amphitheatre, M. Puvis de Chavannes is to execute a composition with groups symbolising Poetry, Eloquence, History, Philosophy, and the principles and application of Science. In the centre will be an allegorical group, which is left to the taste and imagination of the artist. M. Galland, the well-known decorative artist, is to treat the medallions of the cupola in the same apartment. On the grand staircases, MM. Flameng and Chartran are to illustrate the annals of the Faculties of Literature and Science. M. Benjamin Constant, to whom is entrusted the Salle du Conseil Académie, is to paint, in a centre panel, five figures personifying the five Faculties; two side panels will symbolise Literature and Science, two others will have for subjects "Prometheus bound" and "Prometheus delivered."

The other decorative schemes are thus commissioned by M. Nenot, acting in concert with the rector of the Académie de Paris:—Salon St. Jacques, M. Lerolle; Salon Sorbonne, M. Wencker; principal Salle-à-manger, M. Cazin; Salle des Commissions, MM. Lhermitte and Roll; Rector's dining-room, M. Raphael Collin; Salle des Facultés of Literature and Science, MM. Duez and Olivier Merson; Salon du Recteur, M. Clairin. In all probability the Sorbonne, only just rising above the ground, will be finished and decorated before the Hôtel de Ville, which was commenced in 1872, and opened in 1882, unless the Municipal Council hasten their decision, which the artists are anxiously awaiting.

If we add that among the artists favoured by the largest commissions for the Sorbonne are M. Benjamin Constant, son-in-law of M. Emanuel Arago, minister-plenipotentiary and senator; and M. Flameng, son-in-law of M. Turquet, Under-Secretary of State for the Beaux Arts Department, it will be seen that, even in a republic, nepotism is a power in art.

The sculptor Dumont, to whom we owe the "Genius of Liberty" of the Colonne de Juillet, and the statue of Napoleon which surmounts the Vendôme Column, has, during the last few days, possessed a monument in the Cemetery Mont-Parnasse, erected by the pious care of his former pupils. Among his surviving pupils are MM. Maniglier, Mathurin-Moreau, Auzelin, and Jules Thomas. The latter has executed the bust of the master, which crowns a white marble stele surmounting a tomb of the same material. The monument, which is very simple in character, bears inscriptions recalling the principal works of the eminent sculptor.

We ought not to conclude without a word of regret for the landscape painter, M. Moullion, who has died at the age of 54 after a long and painful illness. He was an artist of merit, who was unjustly neglected by the jury of the *Salon*. He obtained, in 1880, the only medal ever accorded to his works, which deserved a better recompense.

Rebuilding of the Old Bailey.—The *City Press* states that the Corporation have at last determined to commence the rebuilding of the Central Criminal Court, and to make the additions which pressure of business has for some years demanded. The "City Fathers," or "Corporators," as some of them love to call themselves, have long talked of this much-needed work, and it is to be hoped that they really mean business this time.

Illustrations.

MONUMENT TO THE LATE G. E. STREET.

WE give an illustration of this work, engraved by Mr. J. D. Cooper from a photograph. A portion of the canopy and pedestal is, however, necessarily omitted in this view, the main object of which is to show the figure and the subject in relief under it. The architectural portion was designed by Mr. Blomfield, and the sculpture is by Mr. Armstead.

We have before expressed our own opinion that the head was not a very good likeness of the eminent architect, but we understand that his surviving relatives, who certainly have the best right to an opinion on the matter, consider the likeness a very good one. In other respects, the figure is at once life-like and sculpturesque in its pose and treatment. The relief represents the arts and crafts required for the due enrichment of a great public building, and does so, not by abstract representations of sculpture, painting, &c., but by showing the practitioners at work. The architect is shown considering his plan, the mason laying the foundation-stone truly, the sculptor modelling his figure of Justice, the carpenter sawing his plank, the bricklayer building his wall, the painter instructor, the tapestry-worker, the smiths at their hammering, with silversmith, on to the final testing of the bell by the musical doctor. One or two of the figures thus described are hidden from view in the illustration, being at the further end of the pedestal.

Every figure has been carefully studied from the nude, and then as carefully from the draped model.

THE GWALIOR GATEWAY.

THIS gateway, now in the Colonial and Indian Exhibition, and originally made for the Calcutta Exhibition two or three years ago, was the outcome of the munificence of the Maharajah Scindia of Gwalior, and the desire on the part of the Government of India to encourage industrial enterprise while fostering indigenous art. Great credit is due to Sir Lepel Griffin, the able administrator in Central India, for having warmly encouraged Major J. B. Keith in his undertaking, and to Mr. Buck, of the Government of India, for seeing it carried out. Engaged in conserving the ancient monuments of Central India, Major Keith desired to give the work a practical signification, and to dissipate the idea that the descendants of those who erected and carved the famous temples, were unable to work like their forefathers. He consequently proposed a representative piece of carving to be prepared for the Calcutta Exhibition, and this soon assumed larger proportions than originally intended. Some allowance will have to be made, seeing that the work of two years was crowded into six months, and that the arch itself is one solid piece of stone weighing 8 tons.

The gateway is not the facsimile of an ancient gate, but embodies the characteristics of Gwalior ornament, culled from various monuments. The arch is dissimilar to any ancient one now standing, and the bands of ornamentation are taken from no gateway, but adapted by Major Keith from what he found in nooks and corners of old buildings. Next, the pillars are quite unique in their treatment, a plain shaft being used with a view of keeping capital and base in prominent relief. The borders outside the pillars are, both in number and variety, different to those found in any other gateway. One was selected from an arabesque border that surrounds the exquisite sanctum of the Sas Bahu Temple, period the tenth century; another from a Mahomedan tomb of the fifteenth centry. Instead of bosses, elephants have been carved in the spandrils. The native is not clever in delineating the human form. It is otherwise, however, when he depicts the elephant,—a task he performs with rare fidelity.

The work was executed in six months, the men working night and day. It may easily, therefore, be inferred that the gateway was erected under exceptional difficulties. These were added to owing to the risk of transporting the arch, which is one solid piece, weighing eight tons. Under ordinary circumstances, it would have been divided into pieces; but the workmen were anxious to show

the large stones their forefathers delighted to employ. Anyone conversant with Gwalior must have remarked the enormous lintels and architraves, measuring in some instances 45 ft.

The engraving is by Mr. J. D. Cooper, from a photograph taken by the Woodbury Company.

MECHLIN CATHEDRAL.

THE last quarter of a century has witnessed the completion of a remarkable number of spires and towers which were left unfinished by their Mediæval builders. In France the Cathedrals of Quimper and St. Malo have had their spires added; in Germany the immense twins of Cologne are now visible with all their monstrous defects; the less enormous, but far more pleasing, spires of Ratisbon Cathedral have also been completed, and certainly are an addition to the beauties of that remarkably interesting building. The very similar pair of spires of the Weisekirche at Zoest are far less happy in their effect, as they serve to make the church,—which was already too short,—still more defective in proportion. The single spire at Ulm is also being carried up, with what effect remains to be seen.

In our own country Redcliffe Church, Bristol, has had its fine spire completed.

This rage for completing towers and spires calls our attention to those which are still left incomplete. It must not be understood that we are suggesting that they should be carried up and completed. The question is one which we neither intend nor care to argue about. We must, however, say that as a rule the completion of these vast Mediæval towers cannot be regarded as an unmixed success. We are willing to allow that the completion of the spires of St. Mary's Redcliffe, Ratisbon Cathedral, and the Cathedral of Quimper have added to the dignity of those buildings, but can any one regard the spires of Cologne as anything but a gigantic failure? Those who recollect the grand effect produced by the solitary unfinished tower of the cathedral, with its weird-looking old crane on the top, pictured to their minds a magnificent result from the completion of this stupenduous stump, but so little has that result been achieved that even the impression produced by vast size no longer exists. We do not say, nor do we know, whether this was owing to some defect in the design, or whether it is that an unfinished building is sometimes more attractive than one which is completed. There can be no doubt that men who have no architectural knowledge whatever can picture to their minds edifices which are far more splendid than anything which architect can devise or builder achieve, and, therefore, when one looks at an unfinished tower the terminations which our fancy would suggest are more lovely than any reality could make them.

The greatest spire ever projected during the Middle Ages is that of the Cathedral at Mechlin. The tower portion of this mighty steeple has alone been erected, and is 348 ft. high; had the work been completed according to the design which still exists, and which we reproduce in our illustration, it would have reached the stupendous height of 640 ft.

There is unfortunately a great deal of confusion with regard to the dates of the various parts of the Cathedral of Mechlin. Van Ghestel gives the following dates: — "Completion of the chancel and aisles, 1227; Consecration of the church, 1312." Schayes says that the choir was erected in 1366, and the nave a century later, and that the tower was commenced in 1452. According to Kügler, the church was rebuilt in 1341, after a fire, but was not vaulted until 1487. He says the choir dates from the first half of the fifteenth century, and that the western tower was commenced in 1452, but there appears to be some doubt about this, because in a work compiled by a former Keeper of the Archives at Malines the date, 1465, was to be seen carved on a lion at the base of the tower. Murray, in his Handbook, gives the following dates:—nave 1437, choir 1451, and the tower 1452. We should not have quoted Murray as an authority upon architectural matters were it not that the architecture of the building would agree better with the dates which he ascribes to them than with those given by any other authorities; for instance, the nave is certainly earlier than the choir. At what time the carrying up the spire was abandoned we are unable to discover, nor does there seem ever to have been any positive intention of abandoning it, as the bases of the flying-buttresses supporting the upper lantern had been fixed, and the buttresses themselves carried up several feet. In point of design Mechlin is more elegant than Antwerp, and has less inclination to wildness about it. We do not wish it to be understood that we advocate the completion of this spire. We have very considerable doubts whether, even if it were possible, such a work would be advisable. The architectural elevation is reproduced from an etching by Wenceslaus Hollar, dated 1649, entitled as follows:—"EKTUHON. Turris Elegantissimæ S. Romoldi Mechliniæ. Si ut Exhibiture in typo, tandem aliquando perficiatur." Published in a work called "Brabantia Sacra et Profana." Amsterdam, 1796.

Hollar copied his etching from the original architect's drawing, which we believe is still in existence. It will be noticed that although drawn in elevation the projections are shown in a kind of perspective. This was probably intelligible enough to Mediæval workmen, but in these days of taking out quantities, contracts, &c., it might lead to some unpleasant disputes. The niches shown in the elevation do not exactly agree with those in the perspective, and are often at different "ranges" upon the buttresses, but it is probable that the Mediæval architect who drew out the elevation did not trouble himself much about the portion of the work already executed. Then, again, the original drawing may not have been copied by Wenceslaus Hollar with that amount of exactitude which a modern draughtsman would have given us in such a reproduction; but, of course, Hollar lived in days when people could not draw Gothic architecture correctly if they would, and would not if they could. He was, however, far away better than any other draughtsman of his time, as will be seen by comparing his illustrations in the Monasticon with those by other contemporary hands.

H. W. B.

THE PALACE WATERGATE.

WE have only tradition, and the architectural evidence, to throw light on the history of this rather *bizarre* combination of architecture. The palace, it is said, was originally but a fort and towers, with no attempt at architectural effect, till an ambitious mason, who had picked up a trick of carving, obtained leave to try his hand on the lower part of the tower, over the circular-headed doorway. He hacked through joints and all like a Trojan, playing the mischief with the arrises, but producing a sort of decorative effect, and obtaining a local reputation as "him who cut the crinkles on the old tower." Subsequently another King, a man of culture, employed an architect, who was supposed to have a smattering of "the Orders," to modify the upper portion of the tower by clumsily inserting pilasters, and cutting wide windows in place of the old slits, forming a room which was known as "the King's Sulkery." A succeeding Queen, who transformed the sulkery into a "boudoir," not appreciating the old, dark corkscrew staircase, contrived the separate entrance and the new, half-open newel staircase on the right. Being much under priestly influence, she also founded the big circular temple seen in the background, from a design furnished by one of the priests. Unfortunately, the master mason, with a reminiscence of the *kudos* gained by his ancestor of the "crinkles," must needs cut a band of similar work round the dome, "to break up the monotony of the surface," as he said; to the infinite disgust of the classically-minded priests, who said such things "might please the critics of the building trade," but were quite out of place on a sacred edifice.

After this temple (which cost money) architectural enterprise slumbered for a generation or two, till the reign of a monarch of much self-appreciation, who thought his palace put out of countenance by the distant temple. Accordingly he determined to clear away all the old buildings round the margin of the basin, and build a grand classic colonnade there, at once a screen to the inferior buildings of the palace behind, and a promenade for state receptions. This monarch had the good or bad fortune to have about his court one of that sort of people called "self-taught geniuses," one Ali Masha (the only architect's name that has come down to us), who began life as a butler's assistant at the court, and evinced his original genius by saving all the corks to cut egg-and-arrow and other ornaments upon them. His talent being noticed he was taken up, put through a course of architectural pattern-books, and eventually became architectural adviser to the king, who, on going away for some time, entrusted him with the design and execution of the proposed "classic" colonnade. But here Ali Masha's defects of education came out. He threw his pattern-books to the winds. He treated the details with a licentiousness which shocked the very mortar-mixers. Forgetting the lesson of his pattern-books, that no decent ornament should ever be seen in public except under cover of a panel or moulding, he cut ornaments wherever he pleased. He put reedings where he should have put flutings. He rusticated the lower part of his columns by carving a kind of seaweedy decoration over them. He jumbled up scrolls and capitals together to make nondescript pedestals, evolved out of his inner consciousness. Finally, he took down the upper part of the old bridge gate-tower, and carried the cornice of the colonnade round it, thus, as he complacently said, "tying it into the composition"; and, having finished it off with a conical joss-house, put his hands in his pockets and surveyed his work with satisfaction.

In due time the king returned. He looked complacently on the new colonnade as his galley approached the stairs; but what was his horror on a close inspection! Each detail drove him more wild than the last; and, on seeing Ali Masha just then coming along the corridor with a roll of accounts under his arm, the king, reflecting that the payment of the architect's short account would be a poor compensation for the shocks his own taste had received, promptly though illogically ordered him to be sent to his long account, and Ali Masha was tied hand and foot and thrown over the bridge, to study further corruptions of classic detail at the bottom of the water.

Such is the tradition. It is said that the king, having happily got rid both of the architect and his bill at one stroke, relented somewhat in his mind, and even became reconciled to his colonnade: at least in the evening, when he was pacing along it, he was observed to look towards the bridge and murmur, "poor fellow! *Requiescat in pace!*" And indeed, as they had taken the precaution to sling two or three thumping lumps of pig-iron to the architect before throwing him into the water, there seemed every probability that this pious wish would be realised.

THE TOWER BRIDGE.

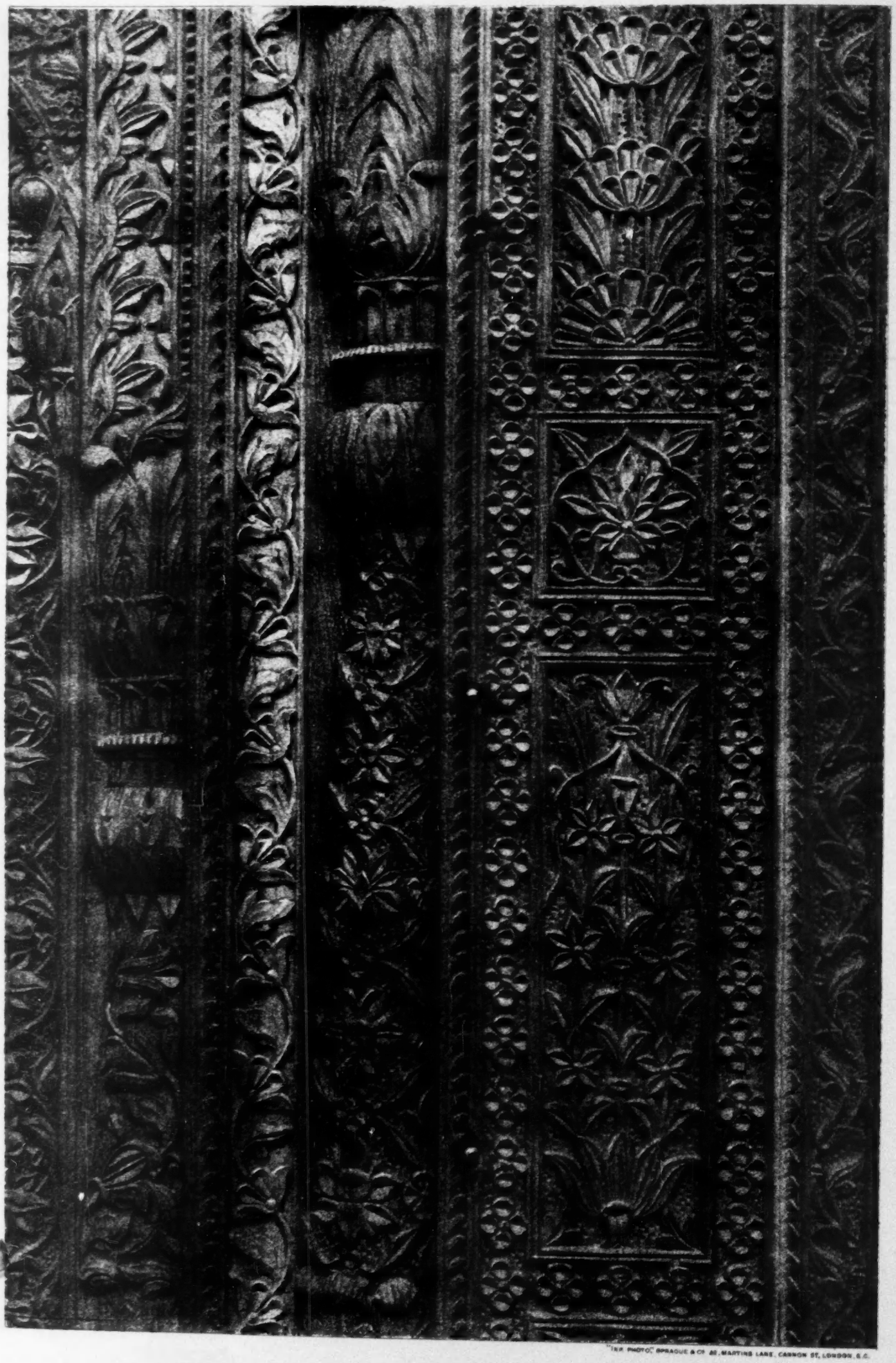
THE design for this bridge, of which we give a view, is from a drawing just completed, and is in effect the design approved by Parliament, and which received the Royal Assent on the 14th of August, 1885.

The illustration shows the bridge open, as will be seen. The bridge portion is carried by two massive Gothic towers, in which provision is made for the necessary machinery for opening and closing the centre span to allow the largest shipping to pass through. Lifts on either side, as well as an internal staircase, are provided for the use of foot-passengers. The lifts communicate immediately with the upper footway, so that the foot-traffic is never interrupted. The centre leaves of the bridge, when open, will be flush with the piers, thus leaving a clear opening or freeway for the shipping to pass of 200 ft. When the bridge is closed there will still be sufficient height at high water for the ordinary traffic of the river to pass under. The approach roads and footway will be 60 ft. in width. The land spans of the bridge will be 60 ft., and the centre span nearly 50 ft. wide. The two land spans will be suspended, as shown. The materials proposed to be used are, for the lower portion of the piers up to the parapet line of the bridge, grey granite, the upper portion of the towers in a hard red brick, with Portland or other hard stone dressings.

The opening, passage of a vessel, and closing of the bridge could be accomplished in four or five minutes, but if even double that time, once or twice in the course of a day, is absorbed, it would, it is urged, be no material interference with the road traffic.

The Act of Parliament having been obtained, the Court of Common Council again referred it to the Bridge House Estates Committee to carry out, and, with the approval of the Court, Mr. Horace Jones, the City Architect, was appointed architect, and Mr. John Wolfe Barry engineer, and under their joint superintendence the work is being carried out.

The foundations below the bed of the river

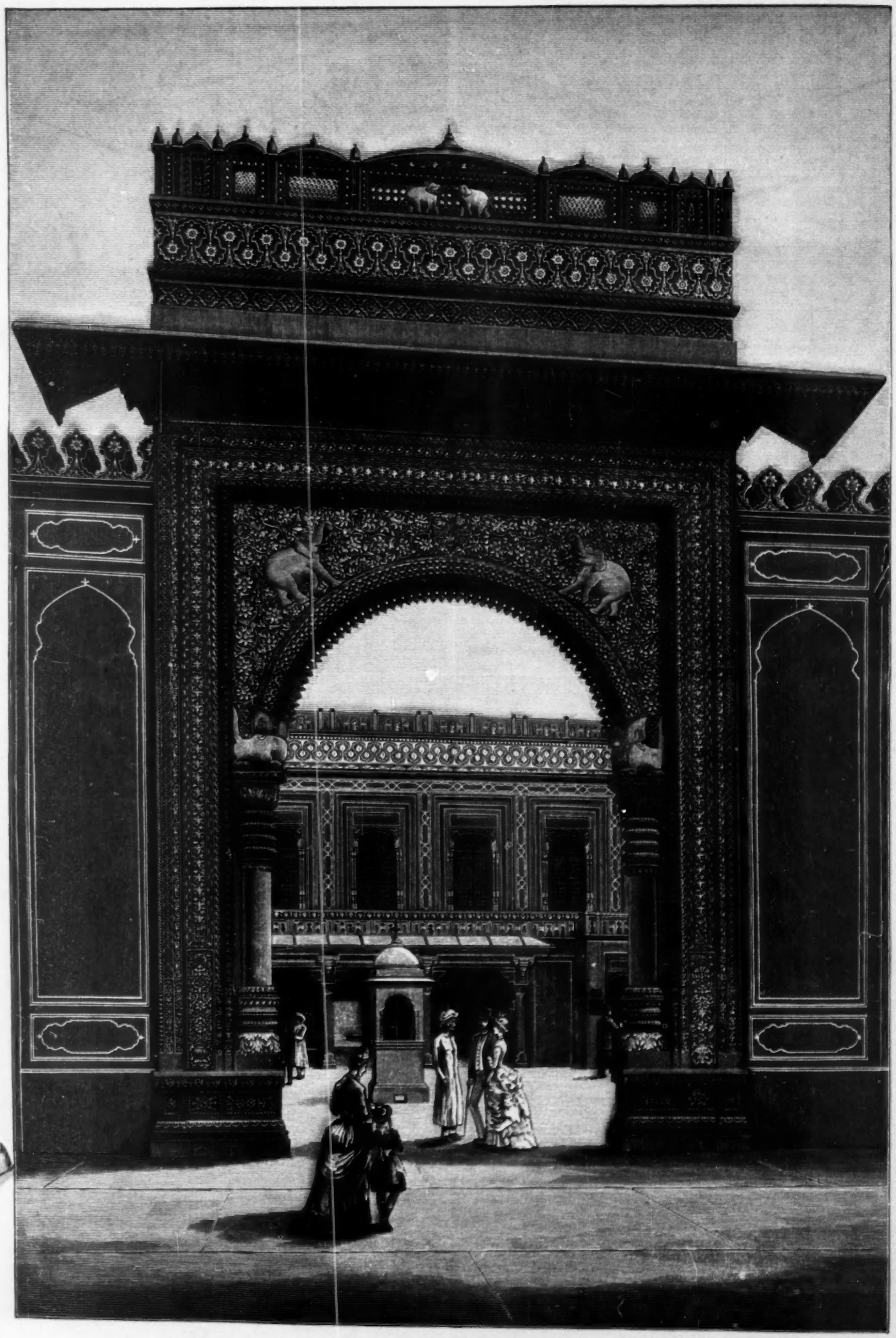


"IRIS" PHOTO" SPRAGUE & Co 62, MARTINS LANE, CANNON ST, LONDON, E.C.

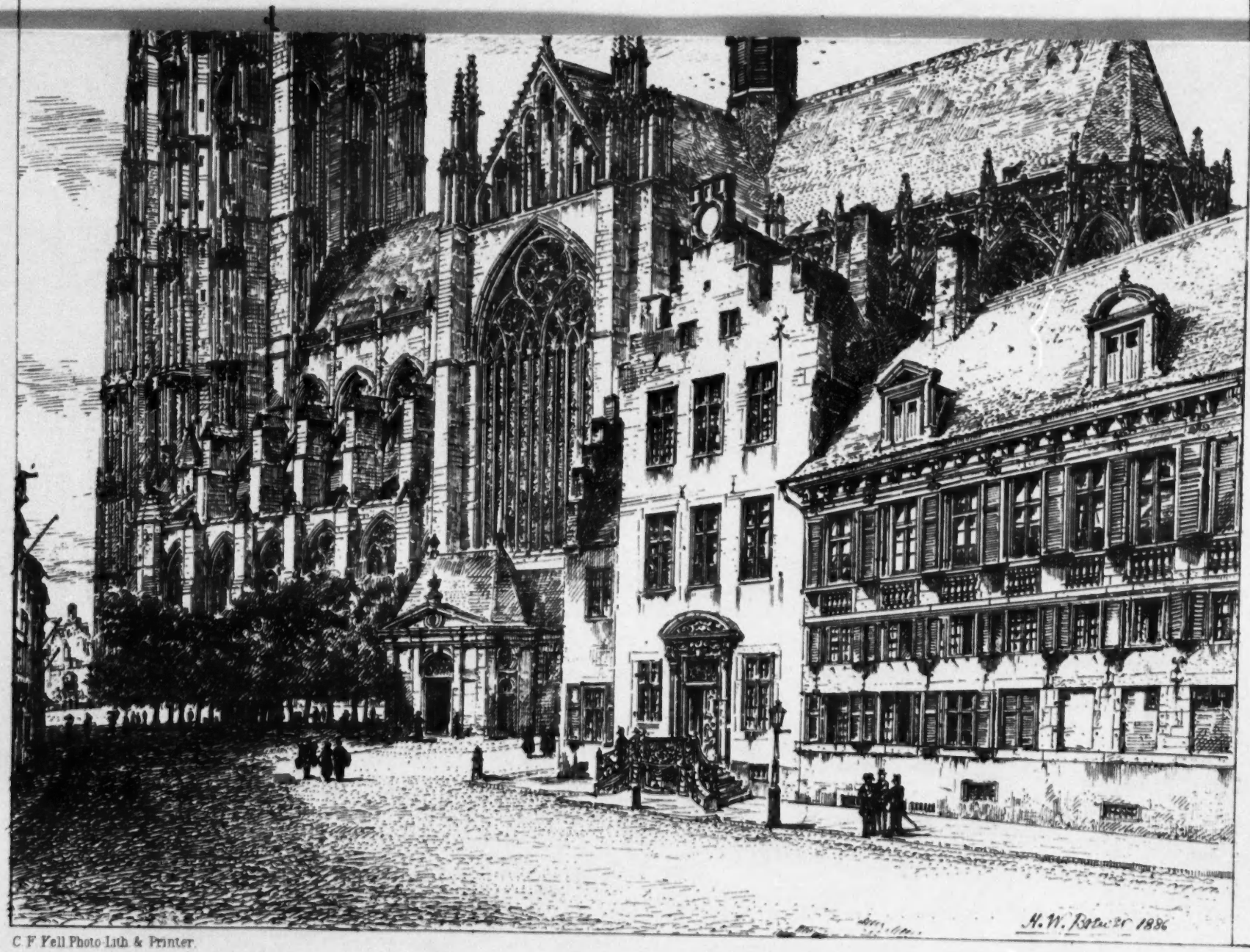
DETAIL OF JAMB OF CARVED WINDOW FROM BHERA SHAHPUR, PUNJAB.
EXHIBITED BY THE PUNJAB GOVERNMENT AT THE COLONIAL AND INDIAN EXHIBITION.

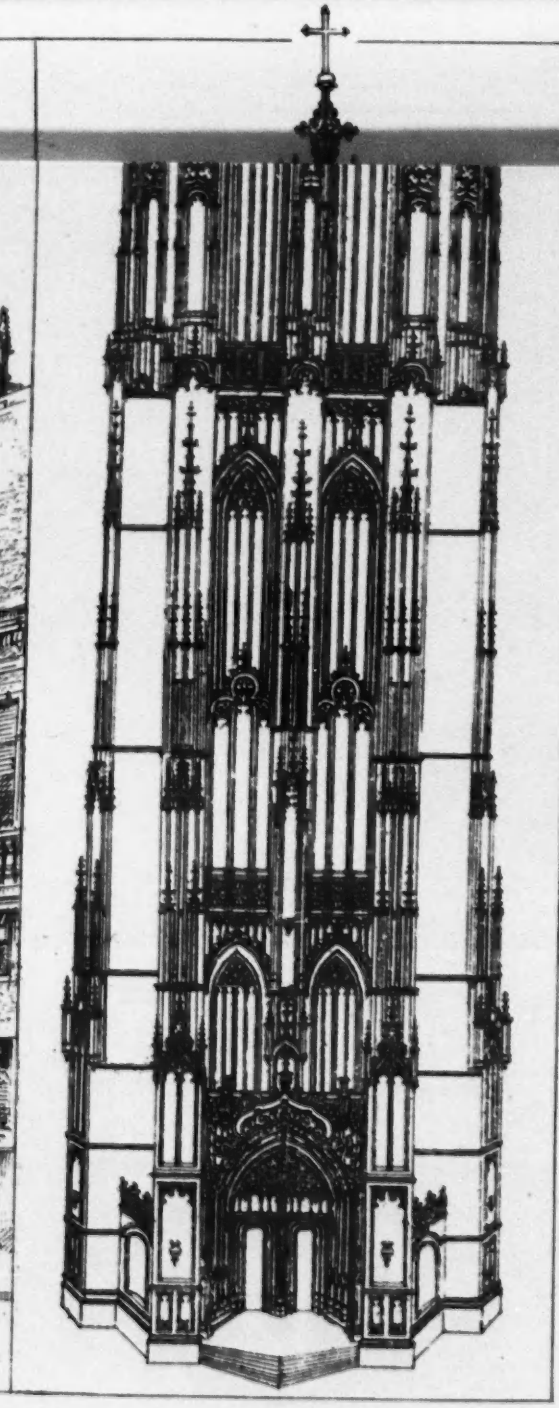
HOLLOWAY COLLEGE, EGHAM.—Mr. W. H. Crossland, F.R.I.B.A., Architect.

CORNER OF THE UPPER QUADRANGLE WITH THE RECREATION HALL.



THE GWALIOR GATEWAY, COLONIAL AND INDIAN EXHIBITION.





C F Vell Photo-Lith & Printer.

8, Furnival St Holborn, London, E.C.

MECHLIN CATHEDRAL TOWER AS ORIGINALLY INTENDED.

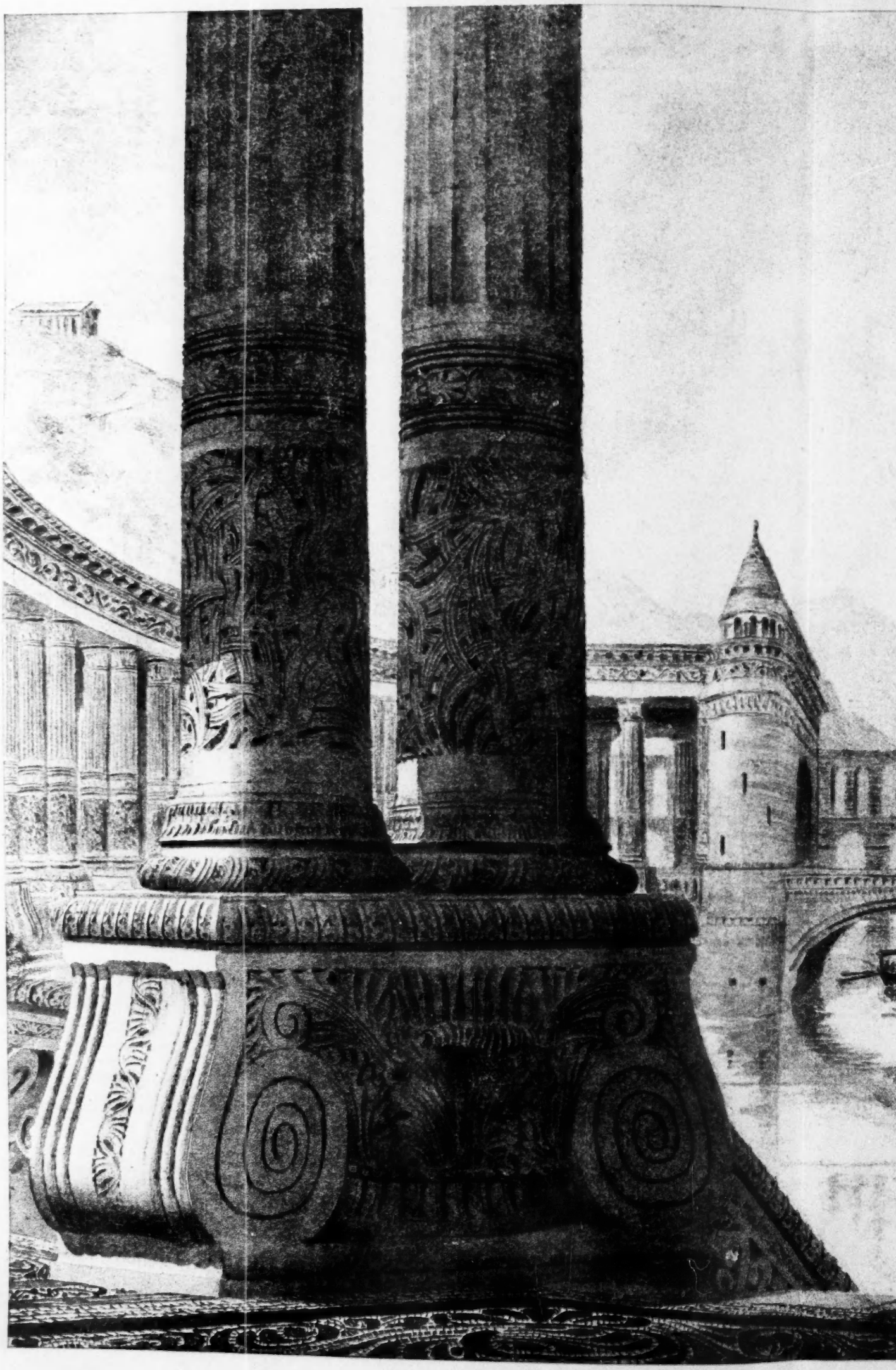
[THE ELEVATION IS REPRODUCED FROM AN ENGRAVING BY HOLLAR.]

C F Fell Photo-Lith & Printer.

8, Furnival St. Holborn, London, E.C.

MECHLIN CATHEDRAL TOWER AS ORIGINALLY INTENDED.

[THE ELEVATION IS REPRODUCED FROM AN ENGRAVING BY HOLLAR.]



THE PALACE WATER-GATE.—From a Sketch b

——"old palaces and towers
Quivering within the wave's intenser day."—

"1BH. PHOTO." SPRAGUE & Cº 28, MARTINS LANE, CANNON ST., LONDON, E.C.

KETCH BY MR. H. H. STATHAM.

nd towers
ser day."—*Shelley.*

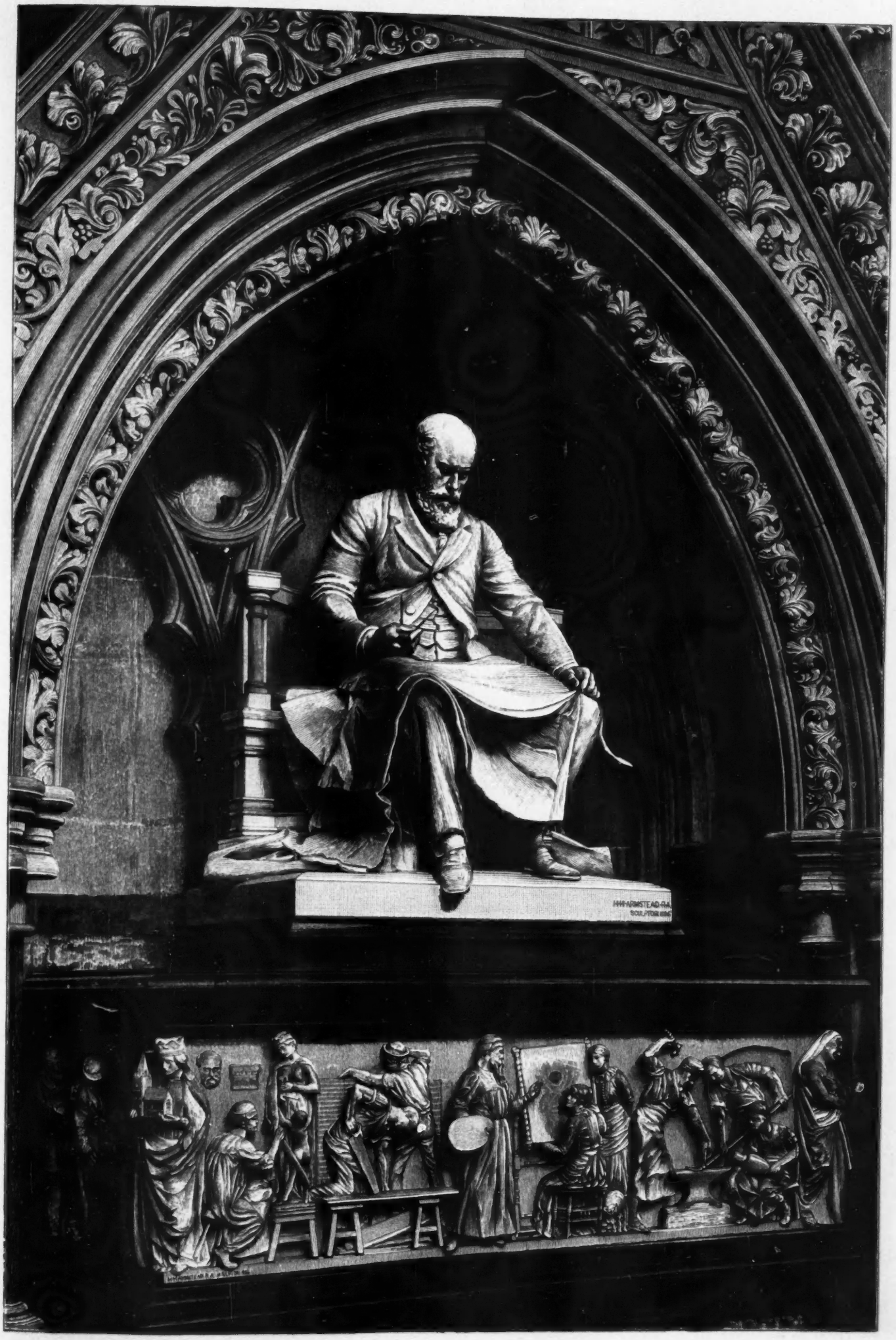
THE

Mr. Horace Jones, F.R.I.B.A., Archit

THE PHOTOTYPE SYNDICATE & CO. 32, MARTINS LANE, CANNON ST., LONDON, E.C.

HE TOWER BRIDGE.

HITECT; MR. J. WOLFE BARRY, M. INST. C.E., ENGINEER.



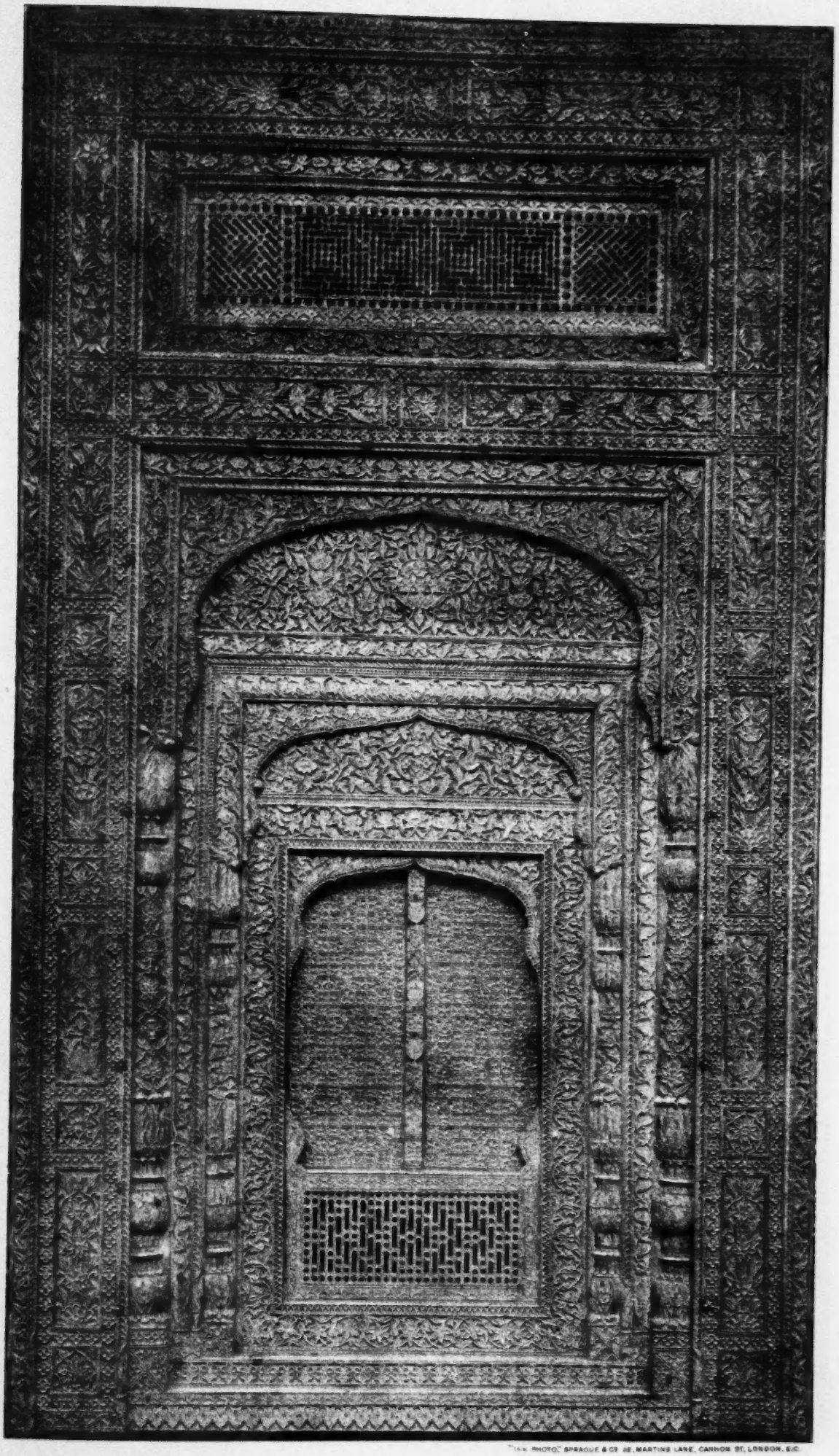
MONUMENT TO THE LATE G. E. STREET, IN THE LAW COURTS.

MR. A. W. BLOMFIELD, M.A., ARCHITECT; MR. H. H. ARMSTEAD, R.A., SCULPTOR.

"THE PHOTO" SPRAGUE & CO. 48 MARTINS LANE, CANNON ST, LONDON, E.C.

HOLLOWAY COLLEGE, EGHAM.—Mr. W. H. Crossland, F.R.I.B.A., Architect.

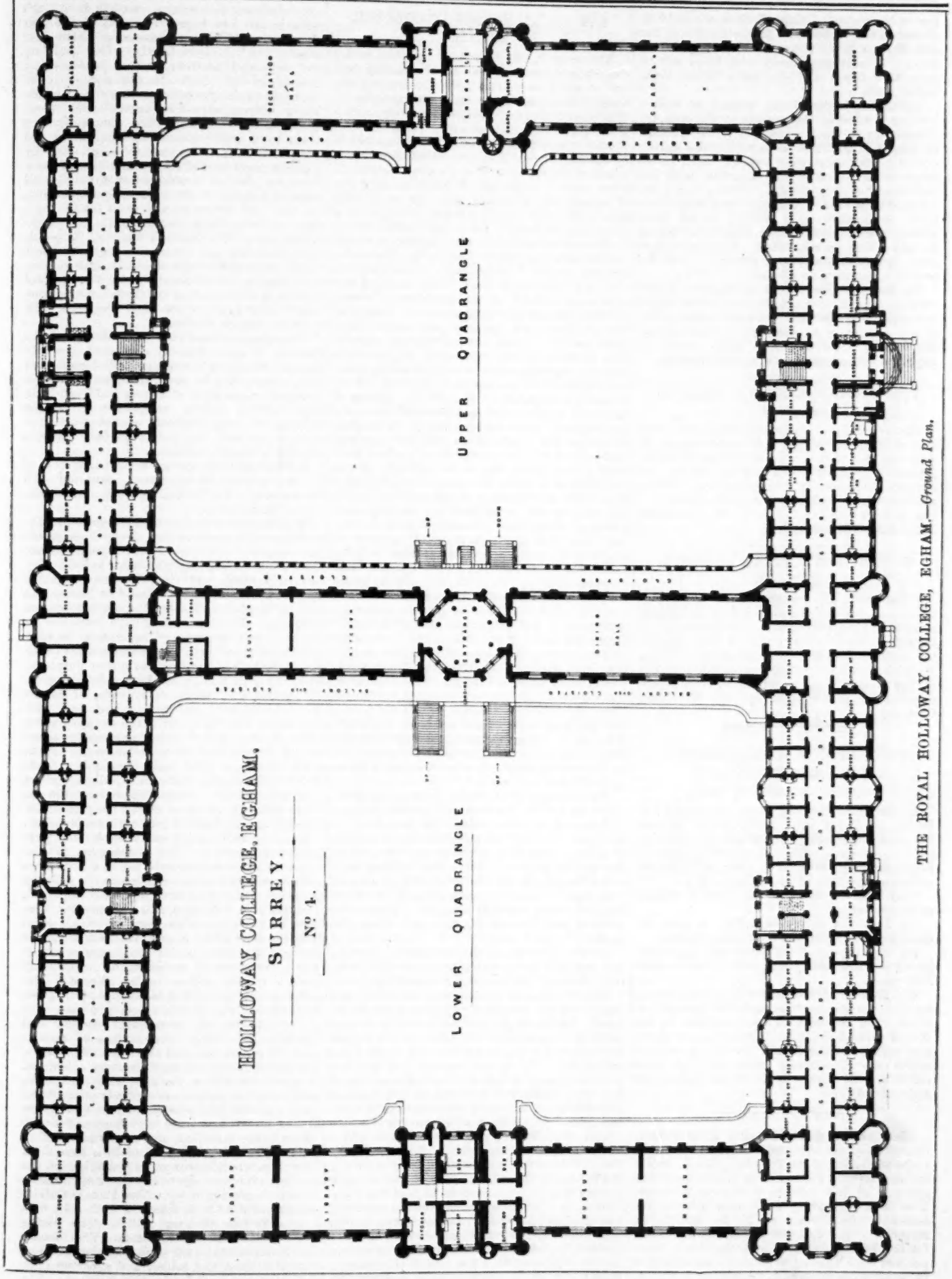
THE SOUTH EAST FRONT.



"TAN" PHOTO," SPRAGUE & CO. 48, MARTINS LANE, CANNON ST., LONDON, E.C.

WINDOW IN CARVED WOOD FROM BHERA SHAHPUR, PUNJAB.

EXHIBITED BY THE PUNJAB GOVERNMENT AT THE COLONIAL AND INDIAN EXHIBITION.



THE ROYAL HOLLOWAY COLLEGE, EGHAM.—*Ground Plan.*

will be in Portland cement concrete, the outer portions being fixed in the shape of permanent caissons filled with concrete. The brickwork is to be in specially hard stocks in Portland cement. The granite ashlar for machinery chases, &c., is to be fine picked; the granite facing to be rock face, with not more than 1 in. of rough; each course consisting of two adjoining stretchers and one header throughout, varying from 2 ft. 6 in. to 2 ft. on the beds. The face work will be similar to that on the piers of the new railway bridge at Blackfriars.

The iron work will be bolted into the concrete, the bolts being either built in or grouted in after the work is done, as may be found most convenient.

The concrete foundation will be about 25 ft. in depth, coming up nearly to the surface of the river bed.

The permanent caissons will be rivetted together on platforms between the stages above low-water level, and beams will be laid across, from which the caissons will be suspended by four 2¼-in. lowering rods; each length of rod to be tested with 22 tons, to be applied for at least two minutes. By means of screws at the upper end of the lowering rods each caisson will be lifted clear of the platform, which will then be removed, and by reversing the screws the caisson will be lowered to the bottom of the river. The site of the caissons on the bed of the river is to be previously levelled by dredg-

ing or otherwise. Trial cylinders, about 10 ft. diameter, are to be sunk in the centre of the site of each pier, before commencing further work. If necessary, these trial holes will be sunk to a depth of 70 ft. below Trinity high-water mark.

The lifting-bridge being placed at such a level as to allow of the passage of the ordinary Thames traffic, the interruption by the passage of vessels of such size as to require the raising of the centre span need not, we hope, be so frequent as to materially interfere with the usefulness of the bridge. That, however, remains to be seen. A bridge that would have to be frequently open would, as we have already said, be little better than no bridge, as far as vehicles are concerned. Foot-passengers have a permanent way over the top, but at the cost of a considerable climb.

The design of the towers is effective, though we should have liked a little more power in the lower portion,—perhaps an even greater simplicity and rock-like character in this part of the design. The crowning stage seems to require a very massive-looking substructure.

THE ROYAL HOLLOWAY COLLEGE, EGHAM.

TO-DAY we give views of the south-east front and of a corner of the upper quadrangle, as well as a ground-floor plan, of this extensive and important building, which was opened by Her Majesty the Queen on Wednesday last. For an account of the building, see another article in the present number. Mr. W. H. Crossland, F.R.I.B.A., is the architect.

WINDOW FROM BHERA SHAHPUR, PUNJAB.

EVERY one who walks down the main avenue at the Colonial and Indian Exhibition must have been struck with this elaborate and beautiful piece of work, which is fixed against the wall on the left, behind the Punjab screen. We give an elevation of the whole, and a portion of the detail to a larger scale, both reproduced from photographs by the Woodbury Company.

THE OFFICE OF SUPERINTENDING ARCHITECT:

METROPOLITAN BOARD OF WORKS.

AT the meeting of the Board to be held this Friday, the 2nd of July, the Works and General Purposes Committee will submit the following recommendations with respect to the office of Superintending Architect, which will become vacant on the 29th of September next :—

"(*a*) That the duties of the office do remain as at present.

(*b*) That the salary be 1,500*l*. a year, inclusive of travelling and incidental expenses.

(*c*) That the age of the person to be appointed be not less than thirty-five, and not more than fifty years.

(*d*) That an advertisement be issued, inviting applications for the office, and that the applications, when received, do stand referred to the Works Committee, with instructions to select and submit to the Board the six candidates whom the Committee may consider most suitable, with a view to the Board making the ultimate selection."

Manchester Architectural Association. On Saturday last, seventeen members responded to the invitation of the President, Mr. L. Booth, for an afternoon's practice in sketching, in the grounds of his residence, Crumpsall Green. Two hours (three to five) were allowed for sketching, two prizes of 2*l*. 2s. and 1*l*. 1s. respectively having been offered by Mr. Booth for the best and second best sketches. Competitors were allowed to finish their work either in water-colours, pencil, or ink, and Mr. A. Darbyshire was the judge. His decision is, no doubt, awaited with some interest. After sketching, the gentlemen present enjoyed the hospitality of Mr. and Mrs. Booth, and the remembrance of the kindly welcome they received, and the happy combination of work and play (bowls, tennis, music, &c., were afterwards indulged in) would probably contribute to render the afternoon one of the most pleasant memories of what has in many respects been a very successful session.

THE ROYAL HOLLOWAY COLLEGE, EGHAM.

EXTERNALLY, this important building, which was opened by the Queen on Wednesday last, and of which we publish some illustrations this week (the views being from photographs by Mr. Vernon Heath), groups effectively, and is picturesque from almost every point of view. Covering, as it does, an area of more than 500 ft. by 350 ft., and providing accommodation for upwards of 250 students, it is of a size which would alone make it imposing. The commanding pile of red and white building, standing on the hill-side among the trees, attracts attention at a great distance, and forms an appropriate centre to the natural landscape, the beauties of which are revealed and emphasised by it. The architectural critic, if so inclined, would have no difficulty in finding fault with many of the mouldings. Much of the ornament is coarse and heavy, and the proportions of many of the windows and openings are much lower than we are accustomed to consider correct. The omission of the bed-mould of the main cornice, leaving merely a row of exaggerated dentils, though there is some precedent for it, is not a successful device, and the capping of the small circular angle-buttresses of the main central pavilions is absolutely ugly. But, after all, these are things which only the captious professional critic notices; the only effect they can have upon the untrained eye is in diminishing a little the pleasure that might have been derived from a sight of the building, and as the untrained eye is only conscious of the great pleasure it does receive, and does not guess how much greater it might have been, such faults are felt only by those who know too much for their own complete satisfaction. In truth, the building generally is such an architectural success, in the more important matters of general grouping, arrangement, and proportion, that we willingly forget the faults of the detail, and desire only to remember and admire the stately magnificence of the angle pavilions, the picturesqueness of the lanterns over the main entrances, the dignified sobriety of the long horizontal lines, the pleasant balance of all the parts, and the brightness of the red brick and white stone work glittering among the trees in the bright sun under the blue sky, as it appeared on Wednesday afternoon when the Queen drove up to the main entrance.

The châteaux of the Loire have, we imagine, given the key of the style and general design, and superficially the college has something of the effect of one of the enormous Royal palaces of France, especially on the terrace side, but in the quadrangles and inside the building on a closer inspection, the English College is seen to have supplied quite as many ideas to the clever architect, whom we may congratulate upon the unusual completeness of the work when the opening day arrived.

Internally no money has been spared to make the students comfortable and provide them with pleasant and beautiful surroundings.

Messrs. Clayton & Bell have decorated the chapel and the octagonal vestibule in the water tower. In the chapel, gold and colour have been lavished without stint, the effect aimed at, we are informed, being quiet and rich rather than redundant. We cannot say that this aim has been completely attained. The lower section of the walls, forming a dado behind the stalls, is covered by an elaborate pattern of gold upon two reds. Above, the wall spaces are of a soft green. The dividing pilasters are partly gilded on the natural stone, which is of a warm ivory tint. This colour is reproduced for the flesh of the figures in the ceiling. The chapel is quite symmetrical, consisting of six bays and an apse. The organ is at the west end over the entrance, and flanked by circular recesses in two stories. The windows, equal in number on each side, are divided by niches, intended hereafter to contain marble effigies of St. Alban and the four patron saints of Great Britain and Ireland,—St. George, St. Andrew, St. David, and St. Patrick,—on one side, with, on the opposite side, five female saints, selected mainly as representatives of learning, viz., St. Scholastica, St. Agnes, St. Catherine of Alexandria, St. Catherine of Siena, and St. Etheldreda. At present the plain deep red of the empty niches is somewhat prominent and heavy, but this effect will no doubt be corrected when the statuary is placed. Springing from the cornice-line and continuing some distance above the arches of the windows, are groups, modelled in high relief by the late Signor Fucigna, of the four Evangelists, with their emblems and attendant angels, and "St. John baptising Our Lord" on one side; and the four greater prophets and Samuel on the other. In the semi-dome of the apse are relievos representing the Creation. These relievos have been treated with colour in a light ivory-like key. The general surface of the vault is gold relieved by longitudinal and transverse belts of ornamental work, carrying a moderate amount of white, the object of these being to give an architectonic framing and steadying support to the groups already named. On the very crown of the vault (one in each bay) are medallions containing the six Archangels, viz., SS. Michael, Gabriel, Raphael, Uriel, Zophiel, and Chamuel. Right and left of the organ are groups of child angels singing and playing instruments. In the central division of the apse wall are three large figures, namely, Our Lord as the Good Shepherd, with St. Mary and St. Cecilia.

The octagonal vestibule in the centre of the building is also profusely decorated in colour and gold, the dome having a ground of graduated blue, upon which are arranged, amongst festoons and garlands of flowers and fruit, little boys holding objects suggestive of various branches of study,—a book, a writing-tablet, a globe, a plummet, &c., and in the four lunettes below are the Four Seasons.

We may usefully append some particulars of the engineering arrangements connected with the warming, ventilation, lighting, and drainage of the building.

With regard to the heating arrangements, the leading conditions were that the medium should be steam, the boiler-house to be 200 yards distant from the main building (the latter is 525 ft. by 360 ft. square), and that the four corridor floors, besides entrances, should be heated, the heat being capable of control from the basement or locally. These conditions have been met in the following manner:—The steam heating plant consists of three Lancashire boilers (with two other boilers, one used for power purposes) 30 ft. by 7 ft. 6 in., with flues 3 ft. diameter, 6 ft. grates, ½ in. shells, $\frac{9}{16}$ in. ends, of Sneds-hill and mild steel, and having ⅜ in. flues with Adamson's flanges, set with the draught going under the bottom and returning along the sides. One of these is fixed in the boiler-house. From these boilers a 6-in. main steam-pipe leads direct to the centre of the main building, where a receiver is fixed. From this all branches are taken through reducing valves, the plan of the building lending itself to four main subdivisions. Connexions for heating water for kitchen purposes are provided. The distribution of the steam in the corridors and to the radiators on each floor is as follows:—To insure the delivery of steam at all points three pipes are employed, a supply pipe, 4 in. bore, and a return pipe, 3 in. bore, both running in the same direction, while from the extremities a condensed-water pipe is led back to a container in the basement, from which the water of condensation returns by gravity to the boilers to be re-used. The radiators are made of 1-in. wrought-iron pipes fixed vertically in a hollow cast-iron base, with an entablature of ornamental design, and requiring no casing. The surface of each is about 25 square feet, and there are 160 of them. The positions selected are those best calculated to spread or diffuse the heat, whilst entrances and exposed situations are specially attended to. Each radiator has a separate flow and return pipe (¾-in. wrought iron), and is provided with valves in the basement, and others attached to itself. The Chapel is warmed by a box-coil of four 1¼-in. wrought-iron pipes placed behind the seating, with openings in the risers of the seats for the circulation of air. The Picture Gallery has six radiators in it, three on each side, with a total surface of about 150 ft. The Dining Hall has six cast-iron radiators. The Library and Museum have each eight circular radiators placed between the tables, and carrying upon their tops standards for lighting purposes. The Music Rooms (twelve in number) are treated with a simple loop of ¾-in. wrought-iron pipe, 2 ft. high. The Lecture Theatre has four radiators, of the same design as those in the corridors. All available water of condensation is collected and returns to a tank in the boiler-house, from which it is pumped back into the boilers. The alignment of the pipes has been so arranged as to cause the steam and water of condensation to flow in the same direction.

The steam-power plant consists of two Lanca-

shire boilers, 30 ft. by 7 ft., with flues 2 ft. 9 in. diameter, grates 6 ft. long, and the usual fittings. They will work up to 75 lb. pressure. They have a chimney separate from that of the heating boilers, and supply steam to the electric light engines, which consist of two engines with coupled 16½ in. cylinders, 32 in. stroke, driving on to a long shaft from which the dynamos are run. The engines are fitted with Paxman's automatic expansion gear. These boilers will also serve the laundry and a hauling-engine which will be employed to operate trucks upon a tramway laid in a subway 300 yards long, going from the stores to the main building.

The gas supply is taken at present from the Staines and Egham Gas Company, through two coupled meters of 400 lights each, and the gas is conveyed by a 6-in. pipe (afterwards reduced to 4 in.) around the building, contouring the site. The building is treated in sections and on the main elevations, each side being divided into four divisions, each with 2-in. branches. In the interior each section is treated separately. The students' rooms (900 in number) have gas laid on for use if required. All common rooms are provided with a continuous system of float and spray gas-lights as a reserve or auxiliary to the electric light.

The water supply is taken from the South Western and Suburban Water Company by a 6-in. pipe connexion. It passes through a Kennedy meter. The whole building is contoured by a 6-in. pipe. At the south tower a valve-chamber is arranged, where a scour cock relief and air-valves are fixed. The water rises to a distributing tank at an elevation of 80 ft., from which it flows by gravity to the service-cisterns. For fire-extinction service the quadrangles have each four double standpost hydrants, and internally the building is protected by a system of fire-cocks on every floor, thirty in all being fixed on the half-landings of the staircase. Externally, standpost hydrants are fixed at all objective points. The London Brigade gauge, 2½ in., has been followed throughout.

With regard to the drainage arrangements, the line of drains passes around the building in straight lines from point to point, with manholes at all changes of direction and gradient. The sizes of pipes are, for the first half of the distance, 6 in.; two such converge, and the main outlet is 9 in. diameter. Bath, lavatory, and sink-wastes all discharge open-ended into trapped gullies with grates. The soil-pipes, 4 in. diameter, are of lead, fixed within the building; together with the wastes they deliver into inspection-chambers, beyond which an intercepter trap cuts off direct connexion with the main drain. All pipes are ventilated. The minor branches are 4 in. diameter, and where discharging into the 9-in. main pipe 6-in. branches are used. Flush tanks of 500 gallons capacity, built in brick and cement, are fixed at the head of each main drain. Doulton's annular syphons are used, the outer case being adjustable to allow of any given quantity of water to be discharged. The heads of the drains are ventilated by cast-iron pipes, 8 in. by 5 in., carried above the roofs. The whole of these works have been carried out by Mr. R. B. Stirrat, engineer, of Palace-chambers, Westminster.

We are informed that the well-known firm of Thomas Lawrence & Sons, of Bracknell, supplied the whole of the bricks used in the building under a contract made direct with the late Mr. Thomas Holloway.

In the *Builder* for Oct. 8, 1881, we published a double-page view of the upper part of the north-east entrance to students' stairs, from the east quadrangle; and in the same number (p. 449) we gave an article descriptive of the building generally. Another descriptive article appeared in our columns on June 10, 1882, and some particulars as to the aims and objects of the College were given by us last week.

We need not refer to the details of Wednesday's proceedings further than to say that in one of the balconies witnessing the opening ceremony were a number of the contractor's workmen. Earlier in the day they had presented an address to Mr. G. Martin-Holloway, representing the managers, foremen, and workmen in the employ of the contractor, Mr. Thompson, of Peterborough, who very considerately provided a special train from Peterborough for the conveyance to the College of about 200 workmen, making, with those still at work at the College, about 400 men. Mr. Thompson subsequently entertained his men at dinner and tea, including in the invitation the workmen employed in the engineering and other departments. Mr. G. Martin-Holloway delivered a kindly speech to the men in reply to the address.

The total cost of the building, with site, furniture, fittings, pictures, &c., has been, as we stated last week, about 600,000*l.*, exclusive of endowment, for which purpose we understand that about 200,000*l.* has been invested.

THE LATE MR. RICHARD KYRKE PENSON, J.P., F.S.A., ARCHITECT.

AFTER the very just and well-merited compliment paid to the memory of this gentleman by Professor Kerr, as reported in the *Builder* of the 5th ultimo (p. 829), on the occasion of the announcement of Mr. Penson's decease by Mr. W. H. White, at the Royal Institute of British Architects, our readers will perhaps be interested to learn some fuller details of his professional history.

Richard Kyrke Penson was the eldest son of the late Mr. Thomas Penson, F.R.I.B.A. and M.Inst.C.E., architect, of Wrexham, and who held the appointments of County Surveyor in Denbighshire and Montgomeryshire, Surveyor to the First, Second, and Third Districts of the Montgomeryshire Roads, and Surveyor to the Oswestry District of Roads, &c. Mr. Kyrke Penson was, we believe, born at Oswestry, and was in his seventy-first year at the time he died, viz., on May 22nd last. He was sent to London to prosecute his studies for about five years, from 1843 to 1848, during which period he became a member of the old Water-colour Society, of which Mr. Henry Warren was at that time President. Mr. Penson became an early exhibitor, and had then acquired some distinction as a water-colour painter. This connexion lasted for many years afterwards, when he continued to exhibit very clever and effective sketches. He also became an F.S.A. and F.R.I.B.A. Mr. Penson afterwards returned to Wales. In 1852 he read a paper on "Ludlow Church" before the Cambrian Archæological Association, an abstract of which will be found printed in the *Builder* for September 4th of that year.

In or about the year 1857 he was appointed County Surveyor for Carmarthenshire and Cardiganshire, and was then associated with Mr. A. Ritchie, now of Chester, architect, who subsequently became his partner and successor. Mr. Penson then became established in very extensive practice; he went to reside at Ferryside, Carmarthenshire, and Mr. Ritchie established the offices at Swansea, conducting among other works then in hand extensive alterations and restoration of Dynevor Castle, for Lord Dynevor. In 1859, Mr. Penson's father died, and his son succeeded him in most of his public appointments, and the younger son, Mr. Thomas Mainwaring Penson, became well known and established in practice as an architect, at Chester, where he died in June, 1864. Besides Dynevor Castle, Llandilo, Carmarthenshire, Mr. R. K. Penson designed alterations and additions to Bronwydd, in the same county, for Mr., afterwards Sir T. D. Lloyd, Bart.; also the new church of St. Mark, Wrexham; new residence for Mr. F. R. Roberts, near Aberystwyth; restoration of St. Peter's Church, Ruthin, Denbighshire; St. David's Church, Carmarthen; the new vicarage houses for St. David's and St. Peter's churches, Carmarthen; Christ Church (new) and St. Peter's Church Schools, Carmarthen; and St. Peter's new Church, Llanelly.

At Swansea and in the neighbourhood, the following works were executed by him:—New church and school buildings at the Cockit; new National Schools, Oystermouth-road; re-building and restoration of Oystermouth (the Mumbles) Church; additions to Kilvey Church; also restoration of Llanrhydian and Penmaen Churches, and new church at Morriston. In Pembrokeshire, the churches at Amroth, Angle, St. Petrox, Roch, Rosemarket, &c. Also in Carmarthenshire, further, the churches re-built, altered, and restored, at Llandarrog, Llanedy, Llanllwch, Llandefeilog, Bettws, Mothvey, Merthyr, Llanglydwen, Llanfhangi-y-Croydden-Langharne, and Llanilar, and Velinford new church, Llanelly. He was also engaged upon residences and parsonage houses at Talgarth, for Captain Thruston; Llidiardi, near Aberystwith; at Westfar Velinfod, Llanelly, for Mr. C. W. Nevill; new Vicarage, Llanedy; National Schools at Aberystwith; new church, schools, and residence at Ferryside, Carmarthenshire; Brymbo and Minera new schools, Denbighshire; new offices and buildings for the Welsh Insurance Company, Wrexham; new schools at Ludlow; schools and dispensary, Oswestry; Penyfont new church, near Oswestry, &c.; and upon numerous county works, lock-up houses, bridges, &c.

Mr. Penson died at his residence, Dinham House, Ludlow, after a long and painful illness. His remains were interred on the Wednesday following in Ludlow Cemetery, when a large concourse of people assembled to do honour to his memory. He was a magistrate for the borough, but of late years was unable to attend the meetings. He retired from practice as an architect in 1864, when, as we have said, he was succeeded by Mr. A. Ritchie, of Chester, who had been associated with him as assistant and partner many years previously. He leaves a widow and only daughter to mourn his loss.

ASSOCIATION OF MUNICIPAL AND SANITARY ENGINEERS & SURVEYORS.

THE Annual Meeting of this Association is announced to be held in Hanley on Thursday, Friday, and Saturday next, the 8th, 9th, and 10th July. The Members will assemble at 12 o'clock (noon) on Thursday, July 8th, in the Town Hall, Hanley (by kind permission of the Mayor). The Council propose the following among other amendments and additions to the rules:—

Rule III.—(*a*) That the Association consist of Civil Engineers and Surveyors holding Chief Permanent Appointments under the various Municipal Corporations or Sanitary Authorities within the control of the Local Government Board, *or under the Metropolis Local Management Acts.* (*b*) Civil Engineers and Surveyors holding *Permanent* Appointments *under any Public Authority within the United Kingdom*, or in the Colonies, or Foreign Countries, shall be eligible for election as Members, subject to the approval of the Council. The Council shall also have power to elect such Honorary Members as they may see fit.

New Rule.—That candidates successful in obtaining Certificates of Competency at any examination under the auspices of the Association, and who are not otherwise qualified as Members of the Association, shall constitute a class of Graduates, and as such shall be entitled to attend all General and District Meetings, and to take part in the proceedings thereof, but shall not vote in the Election of the Council. A Graduate shall be furnished with a copy of the Minutes of Proceedings on payment by him of an Annual Subscription of One Guinea, and shall be transferred to the class of Members when qualified, according to Rule III. A Graduate shall not be required to pay an entrance fee either on his becoming a Graduate or on his transfer as Member.

Subsequently to the consideration of these proposals, the President will deliver an address. During the three days of the meeting several papers will be read and discussed, and visits will be made to many works of special interest to the members.

COMPETITIONS.

Montrose Lunatic Asylum.—The Board of Management of the Montrose Lunatic Asylum lately obtained plans from several architects for the erection of a detached infirmary. These were submitted for report to Messrs. H. Saxon Snell & Son, who selected as the best those signed respectively "Lucidus Ordo," "Space," and "Good Samaritan." Ultimately it was determined to request the authors of "Good Samaritan" and "Space" to send in revised designs, and in the result the latter design, by Mr. Sydney Mitchell, of Edinburgh, has been selected for execution.

St. Saviour's Church, Hanley-road, Holloway. The competition for the erection of this church has been decided in favour of Mr. John P. Cutts, of 28, Southampton-street, Strand. Six architects were invited to compete, five of whom sent in drawings. The drawings were under motto. Mr. Ewan Christian was professional adviser to the committee. The church complete, and parish room, are estimated to cost about 8,500*l.*

An Ensilage Stack in London.—Acting on the suggestion of Mr. H. Kains-Jackson, Secretary of the Ensilage Commission, Messrs. F. W. Reynolds & Co. are erecting on their premises, Acorn Works, Edward-street, Blackfriars-road, a 50-ton stack of meadow-grass silage. The silage will be compressed by Messrs. Reynolds's patent chain appliances. Some of our readers may be glad of the opportunity of inspecting the stack.

THE VICTORIA HOSPITAL FOR CHILDREN, CHELSEA.

THE new Out-Patients' Department and Nurses' Home were opened on Wednesday last by the Prince and Princess of Wales. As a memento of the occasion a specially-designed golden key, made by Messrs. Chubb & Sons, was presented by the architect, Mr. H. Saxon Snell, to their Royal Highnesses.

The hospital is situated at the junction of Tite-street and Queen's-road, Chelsea. It was established in the year 1866 for the treatment as in-patients of boys between the ages of two and twelve years of age, and of girls between the ages of two and sixteen; also as out-patients all children under sixteen years. It is also a training school of nurses for children. Accommodation is provided for sixty in-patients in the old building occupying the original site, and which has been adapted to the purposes of a hospital. It is, however, contemplated, as soon as funds will permit, to add an additional wing, constructed upon more modern principles. Up to the present time the only accommodation for out-patients has been the basement of the old building, and there the arrangements were necessarily of a primitive and unsatisfactory character. The accommodation for the nursing staff was also very inconvenient, as part of it had to be located in premises on the opposite side of the Queen's-road. In the new building the arrangements are such that the ground-floor is devoted to the purposes of an out-patients' department, consisting of a waiting-hall, 53 ft. by 20 ft., and 16 ft. in height, and ranged down one side of it are the surgeons' and physicians' rooms, a dressing-room, and a small ward for the temporary accommodation of those patients who have undergone operations. At one end is a dispensary with a separate small waiting-room for nurses coming from the main building for medicines. This department is also entered by a gate from Tite-street, and the courtyard giving access to it has a low shed ranged down one side for the protection from the weather of the children's perambulators. The upper part of the building is entirely detached from all communication with the out-patients' department upon the ground-floor. It consists of three floors, containing twenty-nine bed-rooms for the nursing staff and sisters, and in addition a sitting-room and bed-room for a superintendent. Two sitting-rooms are also provided, the one for nurses and the other for lady probationers. The basement of the building contains the porter's apartments, a mortuary, *post-mortem* room, a drug store, and cellarage. The cost of the new structure, which has been erected from the designs of Messrs. H. Saxon Snell & Son, will be 7,500*l*. The builder is Mr. Chas. Wall. The heating and gas fittings were supplied by Messrs. Berry & Sons; the locks and ranges by Messrs. King & Co., of Hull; the sinks and baths by Messrs. Cliff & Sons; and the tiling by Messrs. Simpson & Sons.

We gave a view of the new building a year ago, viz., in the *Builder* for June 27, 1885.

WATER SUPPLY.

Alvaston.—Some days ago Mr. H. D. Smith, of Alvaston Hall, invited a few friends to meet his *employés* to celebrate the opening of a miniature waterworks, the plant of which was provided by Messrs. George Fletcher & Co., of Masson Works, and erected under the supervision of Mr. Howard Marsh. It consists of an arrangement of pumps driven by a hot-air engine, all being compactly fitted on to a cast-iron bed-plate. It occupies a very small space inside a brick-built summer-house, which building also forms the water-tower, upon which is mounted a cast-iron receiving-tank to hold 2,000 gallons. Into this tank the water, drawn from a well at a depth of 18 ft., is delivered by the pumps at the rate of 500 gallons per hour. From this tank the water is circulated by cast and wrought iron piping to the various parts of the grounds and houses. In addition to the service of over 15,000 ft. of greenhouses, cucumber-houses, vineries, &c., over four acres of garden ground are irrigated.

Southampton.—The new Waterworks recently constructed at Otterbourne Hill, at a cost of 50,000*l*., and designed to supply Southampton with two million gallons of water per day, were opened on Tuesday last. A noteworthy feature about the enterprise is that the entire quantity of water pumped from the wells will be softened before being transmitted to the town. This is effected by the process of the Atkins Filter and Engineering Company, whose softening plant at these works is said to be the largest in the world. The process by which the softening is effected consists in admixing lime-water with the water pumped from the well and then passing it through a softening cistern to precipitate the chalk in solution, and afterwards through a series of filters.

PROVINCIAL NEWS.

Huddersfield. — The Board of Management of the Huddersfield Infirmary have requested Messrs. H. Saxon Snell & Son to prepare designs for the enlargement of the building and also a report as to the sanitary condition of the premises generally.

Retford (*Notts*).—At the meeting of the Retford Town Council on the 25th ult., a report was received from the committee appointed to consider the disastrous floods from which the town suffers periodically, and, if possible, to devise a remedy. It stated, "The only scheme which would have a chance of effectually preventing floods in the future would be to do away with the present arches under the canal, and to carry the water of the canal over the river by means of a tubular aqueduct, and to raise the banks of the river above and below the aqueduct. This scheme would involve an outlay of many thousands of pounds, and your committee have therefore confined their attention to the best means of diminishing the frequency of floods, and of getting rid of the water when floods do occur. They recommend (1) the construction of a new weir adjoining the shuttles at Bolham Mill. (2) The enlargement of the culvert through which the Carr drain passes from the field in West Retford to the cricket-field. The cost would be about 600*l*. to 700*l*."

Richmond (*Surrey*).—There is a good deal of building work in hand here just now. One of the chief jobs is the erection of the new Post-Office in George-street. Important deviations have recently been made from the original plans, and the Post-office authorities have just bought the property known as Smith's Cottages, at the rear of the present new building. These cottages will be pulled down, and their site appropriated for an extension of the Post Office. The main portion of the building is nearly completed, awaiting only decoration and the erection of fittings. It comprises public office, 26 ft. by 25 ft., lighted by four windows; a sorting-room, 76 ft. 8 in. by 43 ft. wide in the widest part; parcels room, and several smaller rooms on the ground-floor, with two sets of offices and apartments on the upper floors. Up to and including the second story, the whole building is of fireproof construction. As an instance of the manner in which the lowering of the Parcels-Post rates on the 1st of May last has affected the service, it is stated that the deliveries from the Richmond Post Office since the beginning of May have increased 50 per cent., and it has been absolutely necessary to pay particular attention to increased parcels-post accommodation. The builders are Messrs. Pierce & Lansdowne (late Carless & Co.), and the architect is Mr. R. Boyce, of Her Majesty's Office of Works, Whitehall. The sorting-room is ventilated by Messrs. Boyle. The gasfittings throughout the building are in the hands of Messrs. Comyn, Ching, & Co., St. Martin's-lane, London. It is hoped that the building will be finished by the end of October.

Shoreham (*Sussex*).—Plans prepared by Mr. A. Loader, architect, of Brighton, for the cemetery to be constructed at New Shoreham, at a cost of 2,000*l*., were last week approved by the Burial Board, which also decided that the requisite works should be carried out under Mr. Loader's supervision.

Southampton.—At a special meeting of the Southampton Harbour Board, held on the 23rd ult., a letter was submitted which had been received from the Board of Trade, enclosing plans of the proposed new works in the Docks. It was estimated that the dredging would amount to about 125,000 cubic yards, and most of this it was proposed to deposit at the back of the Gymph, both at ebb and flow tides. The Harbour Board were asked what observations they had to make in the matter, especially in regard to the deposit of dredging. A letter was received from the Town Clerk, intimating that the Corporation had received a similar letter to this. It had been submitted to the Commerce of the Port Committee, and they desired to confer with the Harbour Board upon the subject. The Chairman remarked that there was a great deal involved in this matter. The Dock Company asked to be allowed to deposit 125,000 cubic yards of mud on the other side of the Gymph, and how far it would interfere with the works of the Harbour Board was a grave question, and required some consideration. He moved that the communication be referred to the Special Works Committee to report upon, and that the Corporation and Commerce of the Port Committee be invited to confer with them. This was seconded by Mr. Whitchurch, and carried.

Wednesbury.—At the meeting of the Wednesbury Local Board on Monday evening, the Chairman (Mr. Richard Williams) reported that the Board had now taken over the land in the Walsall-road for the purpose of a public park, but it would not be open to the public until it was properly laid out. The Clerk stated that he had received a memorial signed by about 150 ratepayers entering their protest against the proposed site at Foley-street and Walsall-road as being inappropriate for the proposed new Art Gallery. It is suggested that the Board should endeavour to secure a site adjoining the Town Hall.

CHURCH-BUILDING NEWS.

Church Broughton (*Derbyshire*).—The parish church of Church Broughton was reopened on the 21st of June, after restoration. The church dates from Norman times, some remains of that period still existing. The chancel, with its fine traceried windows, was erected in the fourteenth-century, and presents some interesting points for the consideration of archæologists. It was re-roofed in 1827, and in 1846 the north aisle was rebuilt. The church appears to have suffered considerably from these works. Early last year the state of the tower and spire became such as to cause great uneasiness, and Mr. J. R. Naylor, architect and diocesan surveyor, Derby, was called in to advise the churchwardens and parishioners. He found that the ivy which covered the tower with so much picturesque effect was the cause of the mischief, it having forced its way to such an extent into the joints of the masonry that the spire was being displaced by it. The committee decided to carry out the works proposed in Mr. Naylor's report, and in addition to thoroughly restore and repoint the whole of the tower and spire, carefully removing every particle of the ivy. This has been done, and the works now carried out have also included the rebuilding of some part of the east end and re-setting the tracery of windows, repair of old decayed and defective masonry, lowering and replacing floors at the original levels; cleaning walls by washing (no tools being used), reseating in oak, new altar and tile floors, the panelling from old chantry screens being used as reredos. The chancel arch and the wall over were stripped of their plaster and whitewash, when it was found that the original arch was much higher than that then existing. It was determined to rebuild on the old lines, using all the old mouldings and stones that were in any degree perfect. The *Derbyshire Advertiser*, from whose columns we glean these particulars, says that the nave has also been restored "in character with its extremities. The whole has been cleaned from paint and whitewash, the arcade made safe, mouldings repaired and replaced where wanting, floors lowered, seating throughout in oak, and new floors of wood block introduced. The church now presents an example of that thorough restoration which is to be defended and supported in strong opposition to the destruction which wants guarding against by every possible means." The contractors employed for the whole of the work have been Messrs. Walker & Slater, of Derby, whose foreman was Mr. Peak. The heating was carried out by Mr. Jerram, of Derby. The wrought-iron altar-rails were executed by Mr. E. Haslam, and the carving by Mr. E. Bridgeman, of Lichfield. The chancel tiles were supplied and laid by Messrs. Godwin & Sons, of Hereford, and Messrs. Jones & Willis, of Birmingham, supplied the altar-cloth and altar-desk, while the brass pulpit desk is the work of Messrs. Hart, Son, Peard, & Co., of London.

Swansea.—The foundation-stone of the new Church of St. Thomas was laid on the 17th of June by General Grenfell. The church, which will be Gothic in style, will seat 500 persons, the cost of the building being 4,000*l.* The architects are Messrs. Nicholson & Son, Hereford; and the contractors are Messrs. Loveday, Evans, & Co., of Swansea.

Tansor.—Tansor Church, Northants, which was until lately in a state of ruin, being roofless and floorless, is now being restored, under the direction of Mr. Ewan Christian, architect. Mr. Wade, of St. Neots, is the contractor, and the amount of his tender for the nave and aisles was about 1,300*l.* When the works were commenced, the open oak roof, which was decayed beyond all hope of mending, was taken down. The lead which covered it was carefully rolled up, and will be re-melted and used for the new roof, which will be the counterpart of the old one. The uneven flooring was then removed, and the old tombstones, have been taken care of, and will be re-laid in their old places as far as possible. The west portion of the north aisle wall was taken down. The south porch will also have to come down, as well as the roofs of both aisles, for they are hopelessly beyond repairing. A remarkable peculiarity in the church is that the floor is not horizontal, but rises by an inclined plane from the west end to the altar. The level of the top of the capitals is the same throughout, and the columns become shutes as they approach the east. The floor follows generally the fall of the original ground. When the pavement is re-laid this will not be altered, but the floor of the restored church will also have the same peculiarity. There is also a stone seat running for almost the entire length of the north aisle attached to the wall. This also will not be removed, but will be repaired where it is necessary. Under several coats of whitewash on the north aisle wall there are evidences, towards the east end, of old colouring, but it is too indistinct and partial for any judgment to be formed upon it. On the first column of the north aisle there is a portion of an apparently old piece of pigment. The form of a bishop in canonical robes and with a pastoral staff is clearly discernible. In the chancel, which needs restoration, the floor remains in the uneven state which characterised the rest of the church, for the present contract does not touch it. The sanctuary is three steps above the level of the chancel, the chancel not being raised above the level of the nave beyond its continuation of the inclined plane. In the chancel are several curious oak sedilia or stalls which originally belonged to the neighbouring collegiate church of Fotheringhay. A plain oak screen, in imitation of the Perpendicular work, but covered with paint, separates the chancel from the nave. There is no chancel arch. The east window is of the Perpendicular date, but the other windows of the chancel are Early English. Although the present contract does not include the chancel, it will, nevertheless, before the work of restoration is completed, receive the attention it requires. The nave consists of five bays. On the north side there are three Early English arches at the east end of the nave, and three Transitional arches at the west end; while on the opposite side there are three Early English arches, but only two Transitional. The arcades are shown in full detail in plates 2 and 3 of Johnson & Kersey's "Churches of the Nene Valley." The doorway leading from the north porch into the church is a remarkably good specimen of Transitional work (plate 64 in "Johnson & Kersey"). The tower will not be touched, and the ivy which surrounds it, and which gives to the whole edifice such a picturesque appearance, will be allowed to remain as it is.

SCHOOL-BUILDING NEWS.

Burton Dassett.—The foundation stone of new church schools here was laid on the 21st of June by Lady Willoughby de Broke. Messrs. Duckett & Grant, of Fenny Compton, are the builders.

Longton.—The Endowed School buildings have just been completed. They comprise a central hall, around which are grouped six classrooms, in addition to master's rooms and lavatories. Accommodation is provided for 200 boys. In the playground are the offices and covered play-shed. The building is of red brick, with hard stone dressings, in the Domestic Gothic style. Over the entrance is an octagon tower with a lead domed roof. The whole of the work has been very satisfactorily carried out by Mr. C. Cope, builder, of Tunstall, from the designs of Mr. Charles Bell, F.R.I.B.A., of Dashwood House, London, whose design was selected out of forty-four others, on the award of two professional advisers, and he is to be congratulated on having not only executed the building complete within the stipulated sum of 2,000*l.*, but also without any extras whatever. The commencement and finish of this competition is a precedent which we hope may be often followed.

Trewirgie.—The new schools at Trewirgie, for the Redruth School Board, have just been opened. They have been erected from the designs of Messrs. G. B. Nicholls & Son, architects, Birmingham, by Mr. Arthur Carleek, builder, Redruth. The buildings are planned far the accommodation of 350 boys, 175 girls, and 175 infants, with the necessary class-rooms, cloak-rooms, and lavatories. Mr. W. Whetter was the clerk of the works. View, plan, and description of the schools appeared in the *Builder* for April 3 last.

STAINED GLASS.

London.—At St. Botolph's Church, Aldersgate-street, on St. Botolph's day, June 17th, in the presence of the Lord Mayor and Sheriffs of London and Middlesex, who attended in state, eight new windows were unveiled. They represent incidents in the life of our Lord, and were executed by Messrs. Ward & Hughes, of Frith-street, London.

Ramsgate.—The Wesleyan chapel at Ramsgate has just been entirely renovated and reseated. The whole of the windows have been filled with stained glass, executed by Messrs. Jones & Firmin, of Blackfriars-road, London.

Waterloo (Liverpool). — Two stained-glass windows have just been erected in St. John's Church, Waterloo, Liverpool. One, in memory of the late wife of Mr. Brown, of the High School, represents "Christ Blessing Children." Above is a smaller subject, "Christ appointing Peter the Head of the Flock," and below an angel with scroll containing the text "Feed my Lambs." The other window, in memory of the late Miss Pick, illustrates the charitable deeds of Dorcas, and below an angel with the text "She laboured much in the Lord." The artists are Messrs. Mayer & Co.

Look before you Leap. — Artisans, mechanics, and others desirous of emigrating to New South Wales (says the Immigration Agent at Sydney) should first make inquiry of the Agent-General for that Colony as to the prospects of obtaining employment in the branches of industry with which they are accustomed. A large number of British manufacturing industries are yet unknown in Australia, and it would be folly on the part of those engaged in these to proceed to the Colonies for the purpose of obtaining employment in the same. There is practically an unlimited field for every kind of domestic and country labour, but many of what may be designated "town trades" are overcrowded. Professional men should be particularly careful in deciding to emigrate, although experienced surgeons and physicians willing to have a few years up country will find many good openings. Good aurists and other medical specialists can speedily obtain remunerative practice. The legal profession is very largely represented in New South Wales, and a stranger, without colonial connexions, would find the competition of his established rivals too much for him. In the mercantile and trading world the supply of labour is always in excess of the demand, and ledger clerks, invoice clerks, warehouse assistants, packers, shopmen, counter clerks, and others of the same class should stop at home. They are not wanted in the Colonies, and might have to wait months before situations were procurable. In the building trades there is always plenty of work, and skilled masons, bricklayers, joiners, carpenters, &c., can readily obtain employment, the current rates of wages being:—Carpenters and joiners, 9s. to 11s. 6d. per day (standard price, 10s. per day); stonemasons' labourers, 8s. to 9s.; plasterers, 11s. to 12s.; plasterers' labourers, 8s. to 9s.; bricklayers, 11s. to 12s.; bricklayers' labourers, 8s. to 10s.; painters, 9s. to 10s.; plumbers, 10s. to 11s.; gasfitters, 10s. to 11s.; sawmill hands, 9d. to 1s. per hour. In all these trades the working-day consists of eight hours.

The Student's Column.

STONE QUARRIES.—I.

THE CLASSIFICATION OF ROCKS.

THE rocks which compose the crust of the earth are divided into three great classes, according to their modes of origin. The first of these is termed *igneous*, and comprises rocks which have once been in a molten condition, or in a state of fusion. The second is known as *aqueous*,—those that have been laid down or formed in water. The third, *metamorphic* includes those portions of either of the foregoing divisions which have been subjected to sufficient heat and pressure to cause them to substantially change their form, but not quite enough to melt them up.

For our purposes they may then be subdivided in the following manner:—

The igneous rocks fall into two groups:—1, the *crystalline*, composed wholly of crystals, such as granites, syenites, and gabbros; 2, the *non-crystalline*, those made of a substance resembling glass, such as obsidian and tachylite, or which have crystals scattered about in a glassy matrix, as have most lavas.

The different aqueous rocks might be placed into three groups:—

1. *Sandstones*, being made of grains of mineral matter (mostly quartz) cemented together by materials which have, in the majority of cases, been introduced into the rocks subsequent to their deposition. Quartzose sandstones are more or less compact, according to the nature of the cementing material, extreme types being loose sand or concretionary matter, too soft for building purposes; and hard siliceous stone, breaking with a splintery fracture.

2. *Limestones*, being made wholly of calcareous organic remains in a more or less perfect state, or having been deposited chemically in the shape of little spherules, the nuclei of which are generally fragments of mineral matter or pieces of broken shells. We shall treat of dolomites under this heading, as they are magnesian limestones, having sometimes been formed in water, though occasionally by metamorphic action properly so-called.

3. *Clays*, composed mostly of silicate of alumina, which, although primarily derived from the decomposition of felspar rocks, eventually becomes impure, in a greater or less degree, by the addition of other mineral matter both at the time of deposition and subsequently.

Metamorphic rocks may be separated into four groups:—

1. *Gneiss and Crystalline Schists.* — The crystalline materials of which these are formed have arranged themselves in layers which may be composed of one or more minerals. These layers are not necessarily parallel to each other, but are frequently much twisted or contorted, especially in the schists.

2. *Quartzites*, which are sands or sandstones much altered by being greatly pressed into an exceedingly hard mass.

3. *Crystalline Limestones* (or marbles, properly so-called) are ordinary limestone rocks similarly subjected to great pressure, so that their original structure is obliterated, the calcium carbonate having entirely re-crystallised *in situ*.

4. *Slates*, which are clays also very highly pressed, so much so, that the major axes of the particles of which they are composed have been made to assume a position at right angles to the direction of the pressure, hence their characteristic fissile structure.

It must not be expected that all rocks are capable of being satisfactorily placed in the subdivisions here indicated; for nature will not allow any hard-and-fast lines to be drawn, but produces intermediate varieties which are difficult to deal with, inasmuch as they might respectively present characters common to two or more of the subdivisions. In order to understand the subject, it is absolutely necessary, however, that certain rocks be taken as types of the subdivisions. After these types are agreed on, and fixed, the principal intermediate rocks help to make up separate minor groups, whilst those refractory substances which will neither fall into the subdivisions nor these groups, usually receive two or three long names, and form most excellent debating ground, being shifted about from time to time, as this or that authority may think fit.

We will illustrate this difficulty by giving a

few examples. The classification at the outset states that igneous rocks may be either crystalline or non-crystalline. Now, suppose we take gabbro. This is a rock which contains no matrix whatever, but is made wholly of crystals more or less interlocking each other. If, in addition to its ordinary minerals, it contains much olivine, it is called olivine gabbro. This passes into dolerite, a rock which, although crystalline, contains a small quantity of amorphous substance here and there, as proved by microscopic examination. Dolerite passes into basalt, which in some cases presents a micro-crystalline structure; in others, a number of small needle-like crystals are seen porphyritically developed in a glassy matrix. This lava passes into a rock called tachylite, a glassy-looking material. All the gradations are so insensible, that at times it becomes difficult to decide whether a certain rock shall be called gabbro or dolerite, dolerite or basalt, and so on.

Again, typical granite is composed of quartz, felspar, and mica; but it frequently happens that the mica is present only in very minute quantities; and a fourth mineral, hornblende, gradually makes its appearance. Now, the rock known as syenite is composed typically of quartz, felspar, and hornblende: so it will be seen that in a case where all four minerals are present, the rock could not, strictly speaking, be called either a granite or a syenite, and the result is that it receives two names, viz., hornblendic-granite, or micaceous-syenite.

At first sight, it seems quite simple to distinguish the difference between sandstone and limestone, but such is not actually the case. The types are easily recognised, after a little practice, but there are stones in which calcareous organic remains, and carbonate of lime help to form the rock, as much as do quartz grains, so that it becomes a matter of choice whether it be called sandstone or limestone.

The gradation is still more complete when arenaceous and argillaceous deposits are attempted to be differentiated. When we reflect on their modes of formation we cease to wonder at this; in fact, it would be difficult to conceive otherwise. The only reason why a particular stratum was made of sand, and another of clay, is that the velocity of the water off shore (whence the material for making the strata was obtained) gradually became less, and the most easily suspended particles and grains would, therefore, be carried farthest out to sea, before being deposited. The particles composing the clay would then, in the ordinary course of events, be deposited last; the quartz grains of the sand being left behind much nearer the shore line. Now, if the power of transportation of the sea-water always diminished in the same ratio, the supply being constant, sand would be laid down in one place and clay in another; but this is not so. During a storm, for example, this power is greatly increased; and during a calm, when the sea is like a sheet of glass, it is much diminished, so that in the one instance the sand is carried on and deposited with the clay, and in the other the clay is dropped with the previously deposited sand. No wonder, then, that it is difficult to draw the line between the two rocks when they are raised in a consolidated condition, above the water, and presented to our examination in after ages.

Turning lastly to the metamorphic rocks, we shall find a still greater difficulty to surmount. As they are the combined results of heat and pressure on either igneous or aqueous rocks which have thereby been very gradually altered, it will be seen that no line of demarcation can be made, for, although an aqueous rock, as it is followed up, is said to become metamorphic, no one can say where the one class of rock begins and the other ends.

We do not, of course, include the local phenomena of contact metamorphism under the above observations.

Rocks have been classified according to their chemical composition and also on the broad basis of structure, and although, from a purely scientific point of view, these methods may possess some advantages over the one here advocated, yet, for the sake of simplifying matters and introducing a practical element, we prefer to classify rocks by the older method according to their origin.

Trade Mem.—Messrs. Wm. Whitford & Co., constructive engineers, have removed from Limehouse to their new offices and works, West Ferry-road, and have laid down additional plant.

Books.

Zur Profan - Architektur. Von Dr. AUGUST REICHENSPERGER. Cologne: J. P. Bachem. 1886.

STARTING with the assumption that Gothic and German are synonymous terms, the author of this treatise devotes fifty pages to deploring the effect of the Renaissance on architecture in Germany, and the remaining thirty to demonstrating the adaptability of the Gothic style to domestic and public, as well as to ecclesiastical, architecture. He urges it as the duty of German architects to preserve an essentially German style, and deplores what he expressively calls the "Misch-masch" of styles which offend and fatigue the eye in the new quarters of all the considerable towns of Germany. He contradicts with much force Lübke's enthusiastic praise of the age of the Renaissance as the beginning of a new era of deeper passion and more perfect form in literature and art, and cites many authorities, historical and artistic, to prove that the Renaissance was an age of irreligion and social confusion in Germany. The old landmarks were overthrown, and men strove to hide their want of artistic faith and truth behind a servile adulation of antiquity which had a *raison d'être* in Italy, but was utterly out of place north of the Alps. The object of Dr. Reichensperger's treatise may, perhaps, be best summed up in a passage which he himself quotes from a lecture on Gothic architecture by Dr. Wilhelm Lotz.

"As far as we are concerned, it is much to be desired that the architects of the present day should cease from their going to and fro among the styles of ancient and modern architecture, and, remembering the proverb, *vita brevis, ars longa*, should concentrate their efforts on the perfection of one style, which they may adopt as their own. This can only be successfully accomplished by the absolute rejection of all styles save the one. It would seem to argue a want of originality as a distinguishing feature of our age, that it alone has no architectural style of its own. We are driven to choose from among the styles already existing. Those who are thoroughly acquainted with Gothic can have little anxiety as to the choice they should make."

It is curious to see this phase, which we passed through in England more than a quarter of a century ago, just showing symptoms of starting in Germany. In one respect, perhaps, the modern German architects, who desire to take up and carry on Gothic, have more promising ground to work on than we had, since the Mediæval Gothic of Germany is undoubtedly much more capable of improvement than that of England.

Les Artistes Célèbres—Pheidias. Par MAXIME COLLIGNON. Paris: Librairie de l'Art, 7, Rouam, Éditeur, 29, Cité d'Antin.

WE have had occasion to notice M. Collignon's excellent little manual of Greek archæology, which has recently appeared in English. He now, for the second time, brings out a popular book, of which a translation could scarcely fail to be acceptable. To write a history of the life and art of Pheidias is to write the history of the Parthenon marbles. The British Museum authorities have issued an excellent guide to the Elgin Marble-room, but we have as yet no popular account, simple yet complete, and thoroughly well illustrated, of our greatest national treasures. This is what M. Collignon gives us. His book appeals in no way to the professional archæologist. There is a somewhat marked absence of originality in view, but he has prepared a thoroughly pleasant, readable, lucid summary of the views embodied in more learned works. His six chapters are illustrated by 124 engravings, for the most part reproduced from the excellent photographs of Mr. Mansell, of Oxford-street. They are, for the most part, good; but we are sorry to note that the beautiful gold medallion of the "Hermitage," representing the head of Athene Parthenos, as it appears in a woodcut at the end of Chapter III., is simply an offensive caricature. M. Collignon adds a very complete bibliography of his subject. He cites all recent interpretations of the pediment figures; but it is easy to see that he is a disciple of the elder school of commentators; he does not even mention Dr. Waldstein's "Gaia and Thalassa," theory, though he quotes the book in which it is embodied.

Reichenbachiana: Orchids Illustrated and Described. By F. SANDER. St. Albans: F. Sander & Co.; London: Sotheran & Co.; Berlin: Paul Parey. 1886.

THIS is a book containing very fine chromolithographs of orchids; the plates are excellent specimens of this class of work, and may be of value to decorative artists as suggesting new combinations.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

9,435, Ventilators. J. Jenkins and R. B. Perress.

The ventilators are simple and convenient. the frame of the window is fixed a wire gauze pane covering an aperture formed all along the top of the window-sash frame. Two louvres of glass are also fixed in the recess or aperture, and a small shutter, which is actuated by a weight and cord. The ventilators can be left open at night without danger, and it is claimed for them that they do not detract from the architectural appearance of any building to which they are applied.

9,780, Artificial Stone. G. Lilienthal (Melbourne, Aus.).

In making the artificial stone a composition is used consisting essentially of ground limestones or marble, slacked lime, and curdled milk. A given quantity of slacked lime is reduced to a powder, and (say) for 100 parts is mixed with about the same weight of ground limestones or marble. The quantity should always be a little less cement than lime. The mass is mixed with curdled milk until it is just capable of being kneaded. It is then cut or separated into pieces of the size of the stones or other articles to be made, and then dried in the open air. For coloured stones, mineral or aniline colours mixed with a binding material and used dry are added to the composition.

9,703, Sliding Window-sashes. W. Youlten.

By combining the ordinary sash with that of a casement opening inwards, the outside window-cleaning and window-gardening can be more conveniently managed. In this invention, inside each of the ordinary sliding sashes is hinged an additional frame, thus making the outer sash a casement sliding frame. Either the top or the bottom window can be opened inwards or outwards at the level of the lower one; or, if desired, can easily be made to open at either or both levels. The casement opens like a door, when a knob or catch is turned, and the frame is pulled inwards.

9,621, Chimney-Tops and Ventilators. J. A. Macmeikan.

The chimney-pot or flue is made of terra-cotta, and is enveloped in a jacket or case, which slopes toward the inner pot of the flue, leaving an opening of ¼ in. or ½ in., according to the size of the flue between such jacket or case and the inner pot or flue, the upper portion of the inner pot being carried up by a jacket of the same diameter. An opening about an inch wide is left between the bottom of the jacket and the sloping base of the inner pot as a mouth to admit the external air, and a similar space is left between the jacket and the inner pot. The cold external air passes into the jacket, and, becoming warmed by contact with the warm surface of the inner pot, expands and rises, forcing its way in a spiral direction, and in a somewhat rotary motion, into the flue. This motion is assisted by the wind blowing upon the opening at the bottom of the jacket and also on the distance pieces surmounting the same.

NEW APPLICATIONS FOR LETTERS PATENT.

June 18.—8,107, A. Dougill, Lining Sewers, Tunnels, Subways, &c.—8,113, R. Halliday, Securing Glass to Frames or Sashes for Roofs, &c.—8,120, S. Lowden, Portland Cement.

June 19.—8,145, W. Smeaton, senr., Water-closets.—8,146, W. Smeaton, senr., Flushing Apparatus.—8,152, H. Keene, Lead Glazing.

June 21.—8,173, E. Wilson, Window-sash Fasteners or Screws.—8,175, T. Howdill, Fitting Window-sashes and Sash Frames.—8,182, F. Crawshay, Wall Decorations.

June 22.—8,222, J. Dulston, Wood-turning and Shaping Machines.—8,225, T. & J. Harger, Adjustable Bench Stops.

June 23.—8,267, J. Parker and T. Brook, Gullies.—8,286, W. Thomson, Metallic Pipes.—8,293, H. Cunningham, Metal Screws.—8,297, R. Adams, Convertible Sliding Window Sashes.—8,310, J. Fauka, Ventilators.—8,314, S. Watson, Copings and Gutters.—8,318, S. Wallis and T. Wiseman, Cowl.

June 24.—8,339, R. Steinau, Facing Bricks, and manner of setting same.

PROVISIONAL SPECIFICATIONS ACCEPTED.

9,633, F. Boyes, Dies for Brickmaking Machines.—6,517, A. Rust, Stoves.—6,678, C. Herz, Electric Bell and House Telephone Apparatus.—7,099, J. Cadbury and J. Rollason, Locks and Latches.—

5,080, A. Tucker, Locks and Latches.—6,370, R. Lavender, Oxide of Iron Pigment.—6,705, T. Fletcher, Atmospheric Gas-burners.—6,720, J. Illston, Combined Gas and Coal Fire Cooking-Range.—6,827, T. Robinson, Horizontal Saw-frames.—6,875, J. Sagar, Machines for Moulding and Shaping Wood.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

8,753, A. Cooper and T. Harbord, Cooking Ranges or Stoves.—8,931, W. Bruce, Water-closet Apparatus and Mode of Connecting Pipes.—10,282, T. Severley, Apparatus for Blowing, Ventilating, &c.—10,488, H. Chocqueel, Screw-driver.—10,982, G. Hookham and W. Tonks, Lines for Suspending Window-sashes, &c.—5,553, J. Dyson, Cowls, &c.—6,061, L. Groth, Roofing Tiles.—6,691, J. French and J. Craig, Rolled Plate Glass.—10,760, G. Garson, Suspension Bridges.—12,221, D. Allport, Lessening the Slamming of Doors.—1,007, J. Spong, Automatic Fire-Alarm for Dwelling-houses, &c.

RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

JUNE 17.

By S. & G. KINGSTON.

Dorrington, near—Freehold and part copyhold farm, 85a. 1r. 26p. £2,030

JUNE 21.

By SEDGWICK, SON, & WEALE.

Pinner—The residence called New House, and 2a. 3r. 1p., freehold 1,580
An enclosure of freehold land, 13a. 3r. 37p., freehold 3,375
Bushey, near Watford—Freehold residence 395
Forest-hill—Ground-rents of 7*l.*, reversion in 64 years; and of 14*l.*, reversion in 83 years 450

By A. RICHARDS.

Green-lanes—Pitfield Cottage, 55 years, ground-rent 3*l.* 39
Edmonton—116, Upper Fore-street, and a plot of land, 17 years, ground-rent 10*l.* 290
78, Upper Fore-street, 17 years, ground-rent 15*l.* 330

By WEATHERALL & GREEN.

Norwood—9 and 11, Tudor Cottages, 49 years, ground-rent 6*l.* 205

By WOOD & SPINK.

New Southgate—3, Bella-villas, freehold 395

By T. B. WESTACOTT.

Kentish Town—31, 33, and 37, Prince of Wales-road, freehold 1,090
Camden Town—73, St. Paul's-road, 64 years, ground-rent 6*l.* 430
Kentish Town—91, 93, and 95, Patshull-road, 74 years, no ground-rent 1,695
Camden Town—Profit rental of 76*l.* 10s. a year, term 38 years 800
Lower Norwood—1, 5, 6, and 8, Gipsy-road, freehold 2,095

By M. MILES.

Acton—33 to 39 odd, Palmerston-road, freehold ... 450
Hammersmith—17, 23, 25, and 36, Brackenbury-road, 77 years, ground-rent 7*l.* 4s. 1,700
2, 4, and 6, Lamington-street, 49 years, ground-rent 9*l.* 400
82 and 84, Glenthorn-road, 49 years, ground-rent 6*l.* 450

JUNE 22.

By DEBENHAM, TEWSON, & Co.

Kennington—5, Faunce-street, 78 years, ground-rent 6*l.* 350
Bermondsey—1 to 13 odd, Abbey-street, freehold... 1,540
40 and 42, Abbey-street, and 1 to 6, Providence-place, freehold 1,290
36 and 38, Abbey-street, freehold 1,090
30, 32, and 34, Abbey-street; and 50 to 53, Long-walk, freehold 1,280
20 to 28 even, Abbey-street, freehold..... 1,700
12 to 18 even, Abbey-street; 88, Long-walk; and 39 to 42, Bermondsey-square 2,160
Ground-rent of 26*l.*, reversion in 85 years 590
Long-walk,—The White Bear public-house, freehold 1,000
Ground-rent of 13*l.*, reversion in 86 years..... 3,120
31, 33, and 38, Bermondsey-square, freehold 3,520
78 to 91, Grange-walk, leasehold..... 540
23, 24, and 25, Bermondsey-square; and a site in Gregory Court, freehold..... 650
45 to 59, Willow-walk; and 26 and 27, Crimscott-street: leasehold 380

By VENTOM, BULL, & COOPER.

West Kensington—10, Lisgard-terrace, 94 years, ground-rent 10*l.* 550

By PETO, YEATS, & Co.

Camden-road—No. 256, term 52 years, ground-rent 12*l.* 1,260

By A. CHANCELLOR.

Ascot—The Railway Hotel, freehold 3,400
Teddington—A plot of freehold land in the Coles-hill-road 300

By FARRERBOTHER, ELLIS, CLARK, & Co.

Westminster—36, Great George-street, freehold ... 13,000

By E. & H. LUMLEY.

St. Alban's—The freehold residence, New Barnes, and 222a. 3r. 27p. 13,100
An enclosure of freehold land, 18a. 0r. 20p. 1,220
Two enclosures of freehold land, 63a. 0r. 36p..... 4,410

By HUMBERT, SON, & FLINT.

Watford, Queen's-road—Wesley House, freehold... 1,000
Essex-road—The freehold residence Street Lodge 1,100
St. Alban's-road—The freehold residences Widcome and Greenhill Lodges 1,600
129, 131, and 133, Laburnham-villas, freehold..... 1,450

By DRIVER & Co.

Purfleet, near—Parsonage Farm, and 15a. 2r. 14p., freehold 1,140
Pebmarsh, Essex—Spoons Hall Farm, 128a. 2r. 26p., freehold..... 1,910
A plot of land, 1a. 3r. 1p., freehold 81
Blue Pale Farm, 84a. 1r. 12p., freehold 805
Hoblet's Farm, 11a. 1r. 24p., freehold £300
Aldershot—An enclosure of land, 19a. 1r. 20p., freehold 400
An enclosure of land, 14a. 0r. 24p., freehold 850

JUNE 23.

By BAXTER, PAYNE, & LEPPER.

Bromley—The residence Hazeldene, freehold 2,600
The residence Larkfield, freehold..... 1,550

By H. N. NEWTON & Co.

Forest Gate—Two plots of freehold land 160

By JOHN LEES.

Reigate—The Dingle, and 13a. 1r. 39p., freehold ... 10,500

By RUSHWORTH & STEVENS.

Brockenhurst, Hants—The Ober and Brockley Farms, 214a. 2r. 23p., and a rent-charge of 145*l.* a year..... 10,000
Brockley Cottage, and 9a. 2r. 12p., freehold 2,450
Piccadilly—18, Bolton-street, 15 years, ground-rent 21*l.* 1,500
Brompton—9, South-street, 20 years, ground-rent 10*l.* 450

By VENTOM, BULL, & COOPER.

Woking, near—The Beacon, and 8a. 2r. 27p., freehold 2,500
Dorking, near—The residence called The Knowle, and 13a. 2r. 20p., freehold..... 1,595
Newdigate Place, and Ockleys, and 329a. 2r. 28p., freehold 5,800
New House Farm, and 173a. 3r. 7p., freehold ... 1,800
The Jordans, containing 182a. 2r. 34p., freehold 1,800
The Glover's Estate, containing 363a. 3r. 20p., freehold 5,000
Boothland Farm, containing 91a. 3r. 5p., freehold 1,360
Roll's Farm, containing 141a. 0r. 6p., freehold ... 1,450
An enclosure of land, 5a. 0r. 31p., freehold..... 240
Beare Green, near—Four freehold cottages..... 650
Newdigate—Ten freehold cottages..... 1,735
Beare Green—Two cottages and the village smithy 530

JUNE 24.

By BEADEL & Co.

Horsham, near—The freehold residence Norman's, and 47a. 2r. 13p. 3,600

HUMBERT, SON, & FLINT.

Pall-mall—7, St. James's-street, freehold..... 13,200

By WALTON & LEE.

Anerley—The freehold residence Ridge Mount, and grounds 2,300

By J. & R. KEMP & Co.

Camberwell—1 to 6, Victory-terrace, 94 years, ground-rent 42*l.* 1,250

By T. B. WESTACOTT.

Eaton-place, S.W.—An improved ground-rent of 75*l.*, term 38 years 1,630
Lowndes-street, S.W.—An improved ground-rent of 38*l.*, term 43 years..... 700
Kentish Town—19, Ryland-road, 86 years, ground-rent 6*l.* 410

By L. FARMER.

Canonbury—271, Essex-road, 59 years, ground-rent 6*l.* 15s. 445

By C. C. & T. MOORE.

Finsbury Park—9, Portland-row, 92 years, ground-rent 11*l.* 705
Poplar—29, 31, and 33, Pennyfields, copyhold 650
Commercial-road, E.—46 and 48, Morgan-street, freehold 395
Mile-end—17 and 19, Edward's-road, 60 years, ground-rent 16*l.* 125
Ratcliff—84, Brook-street, freehold 170

By NEWBON & HARDING.

Kensington—Improved ground-rents of 12*l.* 15s., term 57 years..... 260
Bayswater—Improved ground-rents of 22*l.*, term 50 years..... 530
Hyde Park—Improved ground-rents of 21*l.*, term 44 years..... 425
St. John's Wood—Improved ground-rents of 25*l.*, term 49 years..... 525
Camden Town—Improved ground-rents of 10*l.*, term 53 years 205
Anerley—Improved ground-rent of 10*l.* 13s., term 66 years..... 210
Holloway—Improved ground-rents of 5*l.*, term 48 years..... 100
Walthamstow—1, Market-place, 90 years, ground-rent 3*l.* 10s..... 295
Bethnal-green—1 to 4, Ames-street, freehold 1,070
Leytonstone—8 to 13, Harvey-road, freehold 1,270
1 to 4, Mornington-road, freehold 605
A plot of freehold land in Mornington-road..... 75
Stoke Newington—16, Mildmay-grove, freehold..... 590
Hackney—16, St. John's Church-road, 91 years, ground-rent 6*l.* 210
Kentish Town—18, Lismore-circus, 61 years, ground-rent 9*l.* 235
Barnsbury—23, Belitha-villas, 29 years, ground-rent 10*l.* 300
Caledonian-road—50, Frederick-street, 65 years, ground-rent 6*l.* 310

By E. STIMSON.

Brixton—10, 12, and 14, Bramah-road, 77 years, ground-rent 18*l.* 900
Walworth—160 and 162, Westmoreland-road, 66 years, ground-rent 8*l.* 10s..... 595
Blackfriars—54, Nelson-square, freehold 840
15, Surrey-row, 88 years, ground-rent 3*l.* 390
Walworth—1, 50, and 52, Manor-road, 59 years, ground-rent 17*l.* 6s. 1,115
25 to 29 and 33 to 39 odd, Lorrimore-road; and ground-rents of 4*l.* and 11*l.* 5s. 2,935
123 to 131 odd, Westmoreland-road, 66 years, ground-rent 23*l.* 15s. 1,380
3, 4, 13, 14, and 15, Sedan-road, 64 years, ground-rent 19*l.* 1,180
Kennington Park-road—No. 41, the nine years' lease only 60
Battersea—12 to 17, Simpson-street, 70 years, ground-rent 31*l.* 10s. 1,000
Paddington—9, Hampton-street, 58 years, ground-rent 4*l.* 390
Croydon—33 and 34, Handcroft-road, freehold 430

June 25.

R. TOMLINSON & Co.

Gunnersbury—42, Grosvenor-place, and a plot of land, 84 years, ground-rent 2*l.* 1,770

By F. HARDS.

Blackheath—106, Shooter's Hill-road, 73 years, ground-rent 15*l.* £935

By R. REID.

Fulham—149, Greyhound-road, 79 years, ground-rent 6*l.* 310
Windsor—16 and 17, Thames-street, freehold..... 1,930

By C. DAVENPORT.

Regent's Park—29, Gloucester-crescent, freehold... 800
City—86, Upper Whitecross-street, freehold 550

By BAKER & SONS.

Edgware—An enclosure of freehold land, 8a. 2r. 9p. 950

MEETINGS.

SATURDAY, JULY 3.

Architectural Association.—Visit to Harrow (see advt. in last week's *Builder* for particulars.)

MONDAY, JULY 5.

Clerks of Works' Association.—Paper by Mr. John Woodley. 8 p.m.

THURSDAY, JULY 8.

Association of Municipal and Sanitary Engineers.—Annual Meeting at Hanley. 12 noon.

Sanitary Institute of Great Britain.—Anniversay Dinner, Holborn Restaurant. 7 p.m.

FRIDAY, JULY 9.

Association of Municipal and Sanitary Engineers.—Annual Meeting at Hanley (continued). 10 a.m.

SATURDAY, JULY 10.

Association of Municipal and Sanitary Engineers.—Annual Meeting at Hanley (continued). 10 a.m.

Miscellanea.

Presentation to Mr. Carbutt, M.P.—On the afternoon of Monday, the 21st of June, a deputation of civil engineers belonging to the Indian Public Works Department waited upon Mr. E. H. Carbutt, M.P., at his private residence, Hyde Park-gardens, to present him with an address in grateful acknowledgment of the valuable services which he has rendered that body for several years past in exerting himself in Parliament and otherwise to obtain redress for their grievances and to improve their position generally. The deputation, which was a representative one, consisted of six officers of the Indian Public Works Department, acting on behalf of their brother officers, numbering over 700. The address, which states that it is presented to Mr. E. H. Carbutt, M.P., M.I.C.E., M.I.M.E., formerly Mayor of Leeds, &c., in grateful remembrance of the disinterested efforts he persistently and successfully made in advocating the cause of the civil engineers of the Department of Public Works serving in the dominions of her Imperial Majesty the Empress of India, is richly illuminated in gold, silver, and various colours, surrounded by a rich border of flowers and other ornaments, all treated in a thoroughly Indian manner, and is placed under glass within a solid silver-gilt frame, the inner lines of which resemble an Indian archway. The work has been designed and carried out by Mr. Allan Wyon, of Regent-street, the Chief Engraver of her Majesty's Seals. Mr. Carbutt, in accepting the address, expressed the pleasure it afforded him to have had the opportunity of assisting such a large number of civil engineers, of which profession he was himself a member. He dwelt upon the importance and magnitude of the engineering works they were engaged upon in India, and explained that owing to numerous changes of Ministry within a short time he was unable to effect all the reforms needed to put the civil engineering service of the Government in India on a proper footing, and to obtain full redress for all their grievances.

Institution of Civil Engineers.—The Birmingham students of this institution held a meeting at the Colonnade Hotel, Birmingham, a few evenings ago, to elect officers, adopt by-laws and regulations, and to transact other business in connexion with the association which they have formed of the Birmingham students. The chair was occupied by Mr. R. Green, and the other students present were Messrs. F. W. Cross, E. Dodd, A. Hill, J. S. Pickering, W. Simkins, F. D. Sharp, and H. L. Tarbet. The objects of this section of the Institution being to promote and encourage the acquisition of knowledge amongst the Birmingham students in all subjects connected with the profession of a civil engineer, a series of visits will be made to works of interest in the neighbourhood, and meetings will be held during the winter months at which papers will be read and discussed by the members. Mr. R. Green was elected honorary secretary and treasurer, and Messrs. F. W. Cross, R. W. James, and H. L. Tarbet were elected members of the executive committee.

Military Memorials at Brighton.—The officers and men of the 5th Lancers have undertaken to defray the cost of a memorial to their comrades who fell in the recent Egyptian campaigns. The memorial will be placed in St. Martin's Church, Lewis-road, Brighton. The memorial, which will very shortly be completed, will be placed on the wall of the eastern aisle, and adjacent to the new lectern. The walls of the aisles are divided by internal buttresses into bays about 8 ft. wide and 18 ft. high, and one of these spaces has been devoted to the memorial, the aisle roof above being also included. The work will consist of a high dado or wall-panelling in wood, which it is hoped may in time be carried along the whole length of the aisle wall. At a height of 7 ft. from the floor this panelling will be crowned with an embattled cornice, and above this line the memorial proper will be placed. It is being executed by Messrs. Simpson & Co., of St. Martin's-lane, London, from the designs of the architect, and will be painted upon tiles having a non-reflecting surface. The memorial painting will be divided vertically into three parts, by two long panels containing figures of angels bearing shields, with the date of erection, &c., upon them. The central division will be chiefly occupied by the inscription giving the names of those in whose memory the work is set up. The side divisions of the memorial will each contain a niche, in which will be painted figures of, on the one side, a soldier in full uniform; and, on the other, of a trooper in the khakee dress worn in hot countries. These figures will be about 3 ft. 6 in. in height. On each side of the memorial will be placed groups of three lances, leaning slightly forward and carried by iron brackets. Above the central panels and side niches the upper part of the memorial will consist of tabernacle work painted on the tiles, terminating above with a wide horizontal band on which the motto of the Regiment, "Quis Separabit?" will occur twice repeated. Above this a richly moulded cornice of wood will be placed, and on it four shields with badges. The sloping roof above will be divided by moulded ribs into six panels, with carved bosses at the point of intersection. These have been carved by Mr. J. E. Knox, of Lambeth, who executed the pulpit and lectern. The panelling and wood work generally has been made by Messrs. Lynn & Sons, of Marlborough-street, Brighton, whilst the whole has been designed by the architect of the church, Mr. Somers Clarke, jun., F.S.A., of Dean's-yard, Westminster. It may be added that a handsome chancel-screen is now being constructed by order of the 4th Dragoons, the regiment quartered at Brighton Barracks previous to the Lancers, and which is intended to be placed in the church in memory of the members of that regiment who died in the recent campaigns.

Fire Protection of the Colonial and Indian Exhibition.—A trial recently took place of the Fixed Steam Fire Engine constructed by Messrs. Merryweather & Sons for the Colonial and Indian Exhibition. The buildings are protected by upwards of seventy hydrants on the water company's main, the pressure in which is, however, insufficient for fire purposes, sometimes falling to 10 lb. per square inch. The engine pumps directly into the main, producing a pressure of 100 lb. per square inch. The Inventions Exhibition was protected by Merryweather & Sons' portable fire-engines, but this year General Festing preferred to have the pumps connected to the main, though in case of a burst in the pipe delivering outlets are provided on the pumps for the attachment of hose. The engine is of the "Greenwich" type, and capable of delivering 700 or 800 gallons per minute. Steam is supplied by a Merryweather patent boiler, in which the water is kept warm by a gas-jet in the fire-box, and steam may be generated and raised to 100 lb. pressure in six or seven minutes. The engine and boiler are mounted on a light wrought-iron frame, and the whole is enclosed in a neat house in the grounds. This compact little engine, weighing only 35 cwt., is a noteworthy contrast to the pumping machinery of a dozen years ago, when an engine to do the work would have weighed from five to eight tons.

Sanitary Institute of Great Britain.—The anniversary dinner of this Institute will be held at the Holborn Restaurant on Thursday next, Captain Douglas Galton, R.E., in the chair.

The Winter Palace at St. Petersburg.—Although this famous and but little-known castle was begun by the Empress Elizabeth, it was not finished till after the accession of Peter III., and the space in front was even then blocked up with shops and poor dwellings, whilst heaps of stones, timber, and rubbish interfered with the access to the palace. In order to get this removed, the Chief Commissioner of Police recommended that the poor should be allowed the materials on their undertaking to remove them. The plan was approved by the Emperor, and carried out in his presence in the course of a day. When the Emperor moved into the palace, he inhabited the suite of apartments facing this square and the so-called Millionaja. This part is called "The Apartment of the King of Prussia." The entry of the Emperor was unattended by any ceremony. The rooms occupied by his Majesty were decorated by the Russian artist Ischewakinsky, and the marbles for the floor and cornices brought from Italy. The Emperor's bed-room was in the western wing, and next to it the library. Above the entrance-drive Peter III. built a gallery which he used as a room for transacting business, it being, however, so elegantly furnished that the furniture alone cost 800*l*. The Empress Catherine inhabited the suite of apartments now named "The Apartments of the Empress Maria Fedorowna." On the day of the Emperor Peter III.'s removal to the palace, the royal chapel was consecrated, the name given being "The Chapel of Resurrection." But in the following year the name was, by command of the Empress Catherine, altered to "The Chapel of the Saviour," on account of an old painting of Christ being removed thither. The interior of the palace was greatly embellished by Peter III., but the decorations were not completed till the reign of Catherine. The total cost till the year 1768 is estimated at 250,000*l*., the architect-in-chief being the celebrated art-amateur, Johan Betzcy. In 1767, the annexe to the palace,—the present well-known Ermitage,—was commenced under the guidance of Delamotte, a French architect. At first this building, oblong in form, reached from Millionaja to the Neva, and four years after a new building was added by Feltan, a German architect. In 1780, several more wings were added; and the Empress commissioned an architect, Guaranghi, to build a theatre, which was finished in 1784. This architect also built the gallery connecting the Ermitage with the theatre and the so-called "Rafael's Gallery." In 1786, the so-called "Marble Gallery," containing the Hall of St. George and the throne-room, was begun, and in 17.4 a splendid throne, the *chef d'œuvre* of Staraw, was placed in the latter.

Hunter's Home.—Not long since we had occasion to draw attention to the impending destruction of John Hunter's house at Earl's Court. Now the work has been completed, and the place is being laid out as a square. A correspondent of a contemporary calls attention to the fact that the builders have obtained permission to name the new thoroughfare "Barkstone Gardens," and suggests that it should receive instead some appellation that would perpetuate the memory of Hunter. We heartily subscribe to this suggestion. The name fixed upon at present may not be inappropriate in itself, but the occasion surely warrants that the greatest person and circumstance connected with old Earl's Court House should be fixed upon to give the new nomenclature. It may not seem a matter of signal merit that here it was that John Hunter kept his caged lions, and prepared the skeleton of O'Brien. When, however, we contemplate the prodigious labours of the great anatomist, we cannot help feeling that anything, however small, done in laying the foundation of the magnificent collection at Lincoln's Inn-fields is worth recording; and surely the most fitting place is the scene where Hunter devoted a part of his life's work. We have placed "Cleopatra's Needle" on the Thames Embankment to commemorate, as we suppose, the "dalliance and the wit" of the swarthy Egyptian queen. Thousands of pounds were spent to bring and rear in our midst an obelisk of uncertain history. Why, then, should we from simple negligence fail to honour, if only by a name, one who has done a thousand times more to make the world healthful and happy than she who "rode on Fortune's neck" and "governed men by change?"—*Lancet*.

A New Building Estate at Aldeburgh.—A very large company of capitalists and others—upwards of six hundred in number—left the Liverpool-street Station of the Great Eastern Railway on Thursday week, by special train, for the quaint old seaside town of Aldeburgh, in Suffolk, attracted by the announcement of an extensive sale of freehold building land by Messrs. Baker & Sons. At the present time Aldeburgh proper consists mainly of three long streets running parallel with the sea front to the extent of nearly a mile, the ground level of the town rising gradually from the shore and esplanade to a lofty elevation, behind which is what is designated the terrace, or high parade. It is on the summit of this cliff, overlooking the old town beneath, and commanding a splendid view of the German Ocean, that the land last week offered for sale is situated. It forms the Crespigny Estate, about twelve acres in extent, upon which several roads have been laid out for building purposes. The property was offered in 117 lots, but before Mr. Baker invited biddings, Mr. Smyth, the local surveyor for the vendor, made a few remarks as to the increasing value of the property in the neighbourhood, observing that additional railway facilities would shortly be given to Aldeburgh, which, if not carried out by the Great Eastern Company would be effected by the Midland Company. Mr. Baker remarked that the land he was about to offer was the only freehold building land facing the sea, all the rest being copyhold; and announced that the plots to be submitted would be offered absolutely without reserve. The sale then proceeded, when there was a very animated competition, the whole of the plots being sold, those having a frontage of 17 feet, and a depth of 60 feet, averaging from 35*l*. to 40*l*. each, whilst the plots having frontages of 20 ft. and 25 ft. realised from 60*l*. to 80*l*. each. A hotel plot, situated at the junction of the terrace and one of the newly-formed roads, having a frontage of 78 ft., and a return frontage of 65 ft., rounded to a radius of 18 ft., was sold for 325*l*. There being a demand for more plots to be submitted, 33 additional plots were offered, the whole of which were sold. The family mansion adjoining the estate, known as Crespigny House, was next offered, and was sold for 870*l*. The total proceeds of the sale amounted to nearly 7,000*l*.

Sheffield Tools.—Every workman knows the value of a good tool; and workers in wood especially know what a pleasure it is to work with a whole "kit" of tools of equable quality, temper, and cut. A gun-stock maker who does best work will sometimes spend years in making a selection of chisels for cutting away the delicate parts of the lock, and when he has got a set to his mind he will be as careful and as proud of them as a surgeon of a case of instruments; but he never thinks of trying any that are not Sheffield make. Files and rasps, too, of which such enormous quantities are used in the hardware trades, are almost universally preferred with the Sheffield brand, although many of them are made and sold in Birmingham, Wolverhampton, and other hardware centres. It is convenient to deal with a local file-maker, especially where there is a large consumption, because of the recutting; but still, most workmen hold the belief that Sheffield files cut the best and last the longest. Saws, again, of all kinds, from the monster "circular" to the tiny "fret," will be found, in ninety-nine cases out of a hundred, to bear some well-known Sheffield maker's name. And even in those cases where we see an occasional manufactory of Sheffield staples located in such towns as Manchester or Birmingham, we can scarcely call it competition; for the material used in nine cases out of ten will be Sheffield steel and the workmen Sheffield workmen. London has a reputation for fine cutlery, as for many other branches of high-class manufacture, and the general explanation of this will be that the best of everything is naturally attracted to the capital. But it has been stated that 99 per cent. of London cutlery is actually made in Sheffield; and, no doubt, the remainder is produced by men chosen from the pick of the Sheffield labour market. — From "*Great Industries of Great Britain*" for July.

Hydraulic Lifts. — Messrs. Archibald Smith & Stevens have just completed at Norfolk House, Thames Embankment, a hydraulic lift for the service of the entire height of the building. It is worked in connexion with the Hydraulic Power Company's mains.

The Proposed Gigantic Iron Tower at Paris.—The question of erecting a gigantic tower at Paris, as proposed and designed by M. Eichel, has suggested several considerations, not the least important of which is whether it is possible to erect such a tower. Supposing this to be satisfactorily disposed of from an engineer's point of view, there still remains another question,—whether the tower will ever be worth the money required to construct it. A third objection to the scheme is that the effect of such a vast structure would destroy all harmony in the great exhibition of which is to form an ornament. Besides, it is positively stated in a contemporary that the assertion that from the top of the tower communication could be opened with Dijon, distant 188¼ miles from Paris, is not quite correct. The altitude of the proposed monument being not quite 1,000 ft., the radius of the horizon could not exceed 50 miles, if we disregard the inequalities of the surface. But the mountains which separate the basin of the Seine and the Rhône, in the Côte d'Or, although not very lofty, may possibly be perceived from an elevation of 1,000 ft. at Paris, under the most favourable condition of the atmosphere, and they are not very far from Dijon. In practice, therefore, such a tower could be used for placing Paris in communication with an army occupying those mountains. *Iron.*

A New Art Gallery in the City.—Last week the new Art Gallery of the Corporation of London was opened at Guildhall, by the Lord Mayor. Mr. Henry Squire, chairman of the Library Committee, in inviting the Lord Mayor to declare the gallery open, said it had long been felt that the City, with its great wealth and position, ought to possess a public art gallery in fitting companionship with its schools of education and music. Last year, on the motion of Mr. Clarke, the Court of Common Council agreed to a resolution, the effect of which had been to bring together into one centre the paintings and other works which are now on the walls, and which might be treated as the nucleus-collection of an art gallery worthy of the City. The Lord Mayor said it afforded him much satisfaction to be present on the occasion, and he congratulated the Court on the step they had taken. He trusted that the Art Gallery,—already so well filled,—might be added to by the liberality of the citizens from time to time. He had much pleasure in declaring the gallery open. Among the artists represented are Sir Joshua Reynolds, Copley, Opie, Seymour, Lucas, David Roberts, Breanski, J. P. Knight, Hoffner, Beechey, Northcote, Pickersgill, Dicksee, Hayter, Smirke, Chantrey, Woolner, Noble, Calder-Marshall, and Durham. The Secretary and Superintendent of the gallery is Mr. A. G. Temple.

The Comte de Paris's Villa. — The Geneva papers give an account of the property near that city which the Comte de Paris is said, on good authority, to have selected for his residence in exile. The villa, which belongs to M. Hava, son-in-law of M. Favre, engineer of the St. Gothard line, was built in the middle of last century, and is beautifully situated on the bank of the lake, in a small but well-wooded park of some thirty acres. It consists of a centre with a slated dome, flanked on either side by a long pavilion, and contains ten large saloons on the ground floor, ten on the first floor, and seven in the upper story. Adjoining are coachhouses for six carriages, stabling for fifteen horses, besides a small theatre to hold 150 persons. The whole house is supplied with water on every floor. In one of the wings is a fine gallery with painted ceiling of Louis XVI. date, while the great drawing-room is furnished with valuable Boule, and contains a beautiful series of enamel decorations.

The Patent Office Library. — We are requested to state that the Free Public Library at the Patent Office, 25, Southampton-buildings, Chancery-lane, W.C., will, on and after July 1st, 1886, be open to the public daily, from ten a.m. to ten p.m., instead of, as heretofore, from ten a.m. to four p.m. This library, in addition to the specifications, indexes, and other publications of the Patent Office, contains a large collection of the leading British and foreign scientific journals, transactions of learned societies, and text-books in the various departments of Science and Art.

Reredos, Cashel Cathedral.—A new reredos, of pitch pine, has been recently placed in this cathedral. It was made by Messrs. Jones & Willis.

The Importance of the Fine Arts to Humanity.—On Thursday evening in last week Mr. T. H. Maguire delivered a lecture at the rooms of the Society for the Encouragement of the Fine Arts, 9, Conduit-street, on "The Importance of the Fine Arts to Humanity." The chair was taken by Mr. E. P. Loftus Brock, the honorary secretary of the Society. The lecturer took a hopeful view of the prospects of art in the present age, believing that, although many of the public affected to form a judgment in one minute of that which had cost years of thought and labour, there was a growing appreciation of true art, and that enlightened patronage would be more freely bestowed and the sympathy which acted as an inspiration to the artist would produce greater artists and greater works than we were accustomed to see. The artist was the product as well as the producer of the art surroundings and art society of his age. Michelangelo and Raffaelle could never have become the giants they were had not their genius been fostered by the sympathy of powerful patrons. A generous tribute to the value of the engraver's art as a means of art-education, and to the chromo-lithographs of our illustrated papers was rendered, the lecturer believing that the result of this popular art-teaching would be a greatly-improved standard of taste through all classes of society.

The Proposed Liverpool Cathedral.—The *Liverpool Post* of Monday last contains the following:—"Mr. Ewan Christian writes to Mr. Clarke Aspinall, one of the hon. secretaries to the committee, that he is preparing his report upon the plans sent in with the least possible delay, remarking, however, upon the importance of the task imposed upon him. It should be clearly understood that whilst no formal appeal is being made for funds until the final selection of a design, yet the committee will most gratefully accept any and every present help that is afforded to them, as considerable outlay has already been incurred in legal and other expenses."

PRICES CURRENT OF MATERIALS.

TIMBER.	£.	s.	d.	£.	s.	d.
Greenheart, B.G. ....ton	6	5	0	7	0	0
Teak, E.I. ....load	11	0	0	15	0	0
Sequoia, U.S. ....foot cube	0	3	4	0	2	9
Ash, Canada ....load	3	0	0	4	10	0
Birch ,, ...	2	10	0	4	0	0
Elm ,, ...	3	10	0	4	10	0
Fir, Dantsic, &c.	1	10	0	4	0	0
Oak ,, ...	2	10	0	5	0	0
Canada	4	0	0	6	10	0
Pine, Canada red	2	10	0	4	0	0
,, yellow	3	0	0	5	0	0
Lath, Dantsic ....fathom	3	10	0	5	0	0
St. Petersburg	4	0	0	6	0	0
Wainscot, Riga....log	2	15	0	4	10	0
,, Odessa, crown	3	7	6	0	0	0
Deals, Finland, 2nd and 1st...std. 100	7	0	0	8	0	0
,, 4th and 3rd	6	0	0	7	0	0
Riga	6	0	0	7	0	0

TIMBER (*continued*).	£.	s.	d.	£.	s.	d.
St. Petersburg, 1st yellow	8	0	0	14	0	0
,, 2nd ,, ...	7	0	0	8	0	0
,, white	7	0	0	10	0	0
Deals, Swedish	6	0	0	15	0	0
White Sea	7	0	0	17	10	0
Canada Pine, 1st	17	0	0	30	0	0
,, 2nd	12	0	0	17	0	0
,, 3rd, &c.	6	0	0	10	0	0
,, Spruce 1st	8	0	0	11	0	0
,, 3rd and 2nd	5	0	0	7	10	0
New Brunswick, &c.	5	0	0	7	0	0
Battens, all kinds	4	0	0	12	0	0
Flooring Boards, sq. 1 in., Prepared, first	0	9	0	0	13	0
Second	0	7	6	0	8	0
Other qualities	0	5	0	0	7	0
Cedar, Cuba....foot	0	0	3½	0	0	4
Honduras, &c.	0	0	2½	0	0	4
Australian	0	0	2	0	0	3
Mahogany, Cuba	0	0	5	0	0	7½
St. Domingo, cargo average	0	0	5	0	0	7½
Mexican ,, ...	0	0	3½	0	0	4½
Tobasco ,, ...	0	0	4	0	0	6½
Honduras ,, ...	0	0	4½	0	0	6½
Maple, Bird's-eye	0	0	6	0	0	8
Rose, Rio ....ton	7	0	0	10	0	0
Bahia	6	0	0	10	0	0
Box, Turkey	5	0	0	17	0	0
Satin, St. Domingo ....foot	0	0	7	0	0	11
Porto Rico	0	0	8	0	1	2
Walnut, Italian	0	0	4	0	0	5

METALS.						
IRON—Pig, in Scotland ....ton	0	0	0	0	0	0
Bar, Welsh, in London	4	10	0	4	17	6
,, ,, in Wales	4	5	0	4	10	0
,, Staffordshire, London	5	5	0	6	10	0
Sheets, single, in London	6	15	0	8	10	0
Hoops ,, ...	6	0	0	7	0	0
Nail-rods ,, ...	5	10	0	6	10	0
COPPER—						
British, cake and ingot ....ton	42	10	0	43	0	0
Best selected	43	10	0	44	0	0
Sheets, strong	49	0	0	50	0	0
,, India	46	0	0	47	0	0
Australian	0	0	0	0	0	0
Chili, bars	39	17	6	40	5	0
YELLOW METAL....lb.	0	0	4½	0	0	4½
LEAD—Pig, Spanish	13	5	0	13	17	6
English, common brands	13	15	0	0	0	0
Sheet, English	14	5	0	14	12	6
SPELTER—						
Silesian, special ....ton	14	0	0	14	2	6
Ordinary brands	13	15	0	14	0	0
TIN—						
Banca ....ton	0	0	0	0	0	0
Billiton	0	0	0	0	0	0
Straits	102	5	0	0	0	0
Australian	103	0	0	0	0	0
English ingots	106	0	0	0	0	0
ZINC—						
English sheet ....ton	18	0	0	18	5	0

OILS.						
Linseed ....ton	21	0	0	21	5	0
Cocoanut, Cochin	33	0	0	32	10	0
Ceylon	26	5	0	0	0	0
Copra	0	0	0	0	0	0
Palm, Lagos	24	0	0	0	0	0
Palm-nut Kernal	0	0	0	0	0	0
Rapeseed, English pale	23	0	0	23	5	0
,, brown	21	10	0	0	0	0
Cottonseed, refined	18	0	0	19	0	0
Tallow and Oleine	25	0	0	45	0	0
Lubricating, U.S.	6	0	0	10	0	0
,, Refined	8	0	0	13	0	0
TURPENTINE—						
American, in casks....cwt.	1	4	6	1	5	0
TAR—Stockholm ....barrel	0	17	6	0	17	6
Archangel	0	10	6	0	11	3

CONTRACTS AND PUBLIC APPOINTMENTS.

Epitome of Advertisements in this Number.

CONTRACTS.

Nature of Work, or Materials.	By whom required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.	Page.
New Station, Hertford	Gt. Eastern Ry. Co.	*Official*	July 5th	ii.
Painting and Repairing Urinals	St. Mary, Islington	do.	July 7th	xv.
Wood Paving	Westminstr Bd. of Wks	G. B. W. Wheeler	do.	ii.
Whitewashing, &c.	Mile End Guardians	J. M. Knight	July 8th	xv.
Erection of Schools, &c.	School Brd for London	*Official*	July 9th	ii.
Painting Works	Bristol Corporation	J. W. Girdlestone	July 10th	xv.
Repairs, Painting, &c.	St. Giles, Camberwell, Vestry	*Official*	July 12th	ii.
Red Deal and Batten Ends	City of London Union	do.	do.	xvi.
Old York Flagging	Maidstone Local Board	do.	do.	xv.
Wood Paving	West Ham Local Brd.	Lewis Angell	July 13th	ii.
Kerbing, Tar-paving, Metalling, &c., Works	Lewisham Board of Wks	*Official*	do.	ii.
Laying Cast-Iron Water Mains, &c.	Southampton Corporatn	W. Matthews	do.	ii.
Repairs to the Shire Hall	County of Hertford	U. A. Smith	do.	ii.
Cast-Iron Lamp Posts	Hackney Board of Wks.	J. Lovegrove	July 14th	ii.
Broken and Unbroken Stone	Hull Corporation	J. Fox Sharpe	July 15th	ii.
Watch House, Portland	Com. of H.M. Works	*Official*	July 16th	ii.
Two-floor Transit Shed	Bristol Corporation	J. W. Girdlestone	July 17th	xvi.
New Station, Offices, &c., Gipsy Hill	L. B. and S. C. Ry. Co.	*Official*	July 19th	ii.
Reservoir, &c., Oswestry	Liverpool Corporation	G. F. Deacon	do.	xvi.
Erection of Shed	Rochestr, &c., Gaslgt C.	*Official*	July 22nd	ii.
Town-hall, Municipal Offices, &c.	Dewsbury Corporation	H. Holtom	July 27th	ii.
New Church (Holy Trinity), Shrewsbury	The Committee	Oswell & Smith	Not stated	xv.
Reinstation of Foresters' Hall, Clerkenwell-rd.	The Trustees	.....	do.	xvi.
Business Premises, High Wycombe	.....	T. Thurlow	do.	xv.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.	Page.
Assistant Surveyor	Hackney Board of Wks	180*l.*	July 6th	xxii.
Clerk of the Works	West Bromwich Un.	2*l.* 10*s.* per week ...	do.	xxii.
Surveyor	Stockton U. S. A.	350*l.*	July 10th	xxii.
Surveyor and Sanitary Inspector	Henley-on-Thames Cor.	130*l.*	July 19th	xxii.

TENDERS.

BEDFORD.—For new house in Spring-grove, Bedford, for Mr. R. H. Coombs. Messrs. Usher & Anthony, architects :—

Smith	£1,259 0 0
Foster	1,239 0 0
Spencer	1,239 0 0
Freshwater	1,217 0 0
Haynes	1,210 0 0
White	1,199 0 0
Warton	1,197 0 0
Harrison	1,197 0 0

BETHNAL GREEN.—For building ten houses, Hart's-lane and Florida-street, Bethnal Green-road, for Mr. P. J. Dixon. Messrs. Thos. & Wm. Stone, architects, Great Winchester-street :—

Hawkins	£2,878 0 0
Ames	2,875 0 0
Wire	2,750 0 0
Forrest	2,476 0 0
Higgs	2,300 0 0
Peppiatt	2,199 0 0

BRIMSDOWN. — For sewerage works, Brimsdown Estate. Mr. J. Cooley, surveyor :—

Williams, Tottenham	£1,700 0 0
Turner, Dulwich	1,650 0 0
F. Vokes, Islington (accepted)	1,600 0 0

BROMLEY.—For erection of new Banking House at Bromley, Kent, for the London and County Banking Company (Limited). Mr. W. G. Bartleet, architect. Messrs. Stonor & Sons, surveyors :—

Parsons	£3,970 0 0
Payne	3,957 0 0
Taylor	3,800 0 0
Adcock	3,796 0 0
Crossley	3,740 0 0
Naylor	3,690 0 0
Armand	3,641 0 0
Smith	3,640 0 0
Colls	3,600 0 0
Stimpson & Co.	3,480 0 0
Cox	3,443 0 0

CANNOCK.—For additions to the male wards at the Cannock Union Workhouse. Mr. J. R. Veall, architect, Wolverhampton :—

Hughes & Co., Churchbridge, Cannock	£850 0 0
G. & F. Higham, Wolverhampton	823 0 0
H. Lovatt, Wolverhampton	740 0 0
Bradford & Linford, Cannock	725 0 0
Horsman & Co , Wolverhampton	710 0 0
J. Gilbert, Penkridge	691 0 0
Jones & Son, Sedgley	690 0 0
S. Wootton, Bloxwich	681 0 0
T. Mason, Hednesford	659 0 0
J. Greensill, Great Urpley	638 0 0
Anderson, Cannock	623 0 0
J. Guest, Brettle-lane	610 0 0
J. Reynolds, Cannock (accepted)	565 0 0

CHATHAM.—For new vestries and organ-chamber to Wesleyan Chapel, New Brompton. Mr. J. W. Nash, architect. Quantities by architect :—

Edser & Bockham	£1,000 0 0
G. Gates	790 0 0
T. Callund & Son	747 0 0
C. E. Skinner (accepted)	645 19 0

CHATHAM.—For repairs and alterations to stables at Sun Hotel, Chatham. Mr. J. W. Nash, architect :—

H. & J. Bathurst	£186 0 0
Edser & Bockham	142 0 0
F. Field	138 0 0
T. Pankhurst (accepted)	130 0 0

CHELSEA.—For pulling down and rebuilding premises, 52 to 55, Sloane-square, Chelsea, for Mr. I. J. Stroulger. Mr. F. Knight, architect. Mr. F. R. Smith, surveyor :—

Pearce & Lansdowne*	£5,363 0 0
Higgs & Hill	5,340 0 0
Adamson & Sons	5,335 0 0
C. Wall	5,198 0 0
Hall, Beddall, & Co.	5,022 0 0
Lathey Bros.†	5,000 0 0
Nightingale	4,940 0 0
Stimpson & Co. (accepted)	4,797 0 0

* 15*l.* credit. † 25*l.* credit.

CROYDON.—For the finishing of premises, George-street, Croydon, for Mr. W. J. Bacon. Mr. J. Webster, architect, Doughty-street —

Maides & Harper	£673 0 0
F. R. Docking (accepted)	515 0 0

CHESTER-LE-STREET (Durham).—For alterations and additions at the Hermitage, near Chester-le-Street. Mr. H. T. Gradon, architect :—

John Jopling, Chester-le-Street	£935 9 0
Thompson & Punshon, Chester-le-Street	881 13 1
Geo. Gradon & Son, Durham	799 9 0

GOOSTREY.—For alterations to farm house, Goostrey. Mr. T. Hartas, architect, Manchester. Quantities by Mr. J. G. Petherick, B.A., Weaste :—

	General Tender.	Granary.	Electric Bells.	Total.
Acton	£1,000	£90 0	£8 0	£1,098 0
Brown	997	76 0	3 0	1,076 0
Heywood	936	106 17	3 15	1,046 12
Massey	925	75 0	4 0	1,004 0
Harrison	905	79 0	3 15	987 15
Holt	890	75 0	3 0	968 0
Costes*	870	73 0	7 0	950 0

* Accepted.

HAMPSTEAD.—For the erection of dwellings, Flask-walk and Back-lane, Hampstead. Mr. Peter Dollar, architect. Mr. B. Swinstead, surveyor :—

Wall Bros.	£5,727 0 0
Scrivener & Co.	5,489 0 0
Stimpson & Co.	5,386 0 0
Simpson & Son	5,378 0 0
Flew & Co.	5,200 0 0
Manley	5,125 0 0
Toms	4,743 0 0

HAMPSTEAD.—For road and sewer-making on the National Standard Land Company's Woodbine Estate, Hampstead :—
J. Ford & Co., Carteret-street, Westminster (accepted).
[For list and amounts see *Builder* for June 12, p. 871.]

HASTINGS.—For making new entrance to Blacklands Church, Hastings. Messrs. Jeffery & Skiller, architects :

Austin	£124 0 0
Warman (accepted)	105 0 0

LONDON.—For alterations and additions to schools and offices, Gravel-lane, Houndsditch, in the City Division, for the London School Board. Mr. T. J. Bailey, architect. Mr. C. W. Brooks, surveyor :—

Sabey & Son	£4,869 0 0
Pritchard	4,244 0 0
Oldrey	3,993 0 0
Gibbons	3,946 0 0
H. L. Holloway	3,895 0 0
Hart	3,890 0 0
Kirk & Randall	3,870 0 0
Green	3,850 0 0
Johnson	3,846 0 0
Stimpson & Co.	3,800 0 0
Jerrard	3,777 0 0
Atherton & Latta	3,600 0 0

LONDON. — For alterations and additions to the Clarendon Tavern, Tidal Basin, Victoria Dock-road, for Messrs. Smith, Garrett, & Co. (Limited). Mr. James F. Wesley, architect :—

J. A. Taylor	£669 0 0
Harris & Wardrop	621 0 0
M. A. Palmer & Co.	599 0 0
J. Walker (accepted)	593 0 0

LONDON.—For alterations, &c., of 83, Fleet-street, for Mr. S. Weingott. Mr. W. Ralph Low, architect :—

S. Morby	£950 0 0
J. T. Chappell	937 0 0
B. Cook	892 0 0
Holliday & Greenwood	839 0 0
Dove Bros. (accepted)	785 0 0

LONDON.—For rebuilding 31, Hertford-street, Mayfair, for Mr. F. J. Merrieless. Mr. W. Flockhart, architect. Messrs. Evans & Deacon, surveyors :—

Jerrard	£4,120 0 0
Shaw	4,100 0 0
Foster & Dicksee	4,068 0 0
Puzey & Lumley	3,925 0 0
Brass	3,786 0 0
H. & E. Lee	3,783 0 0
Lawrence	3,695 0 0
G. & E. Bywaters	3,686 0 0
Colls & Son	3,648 0 0
Toms	3,643 0 0
Braid & Co.	3,586 0 0
Stimpson & Co.	3,470 0 0

LONDON.—For rebuilding 128A, Holborn, for Mr. A. W. Gamage. Mr. Jas. Webster, architect, Doughty-street :—

	Main Structure.	Shop-Front, &c.	Total.
W. & H. Salmon	—	—	£1,619
J. M. Macey & Sons	£1,220	£363	1,583
Brown & Harris	—	—	1,567
T. L. Green	1,278	235	1,513
Gould & Brand	1,215	198	1,413
H. L. Holloway	1,127	120	1,247
Puzey & Lumley	974	246	1,220

MUNDON (Essex).—For repairs and new buildings, Parsonage Farm, Mundon, Essex :—

N. Saunderson, Dedham, Essex	£1,100 0 0
Reed, Burnham, Essex	868 10 0
Diss, Colchester	850 0 0
E. Linson, London	840 0 0
Cooper, Goldhanger	750 0 0
Ridley, London	748 0 0
Warren, Purleigh	720 0 0

PIMLICO.—For shop-front and alterations, &c., for Mr. H. Overton, Pimlico. Mr. Jas. Young, architect :—

Geo. Colls (accepted)	£340 10 0

RAINHAM (Kent).—For house and shop, High-street, Rainham. Mr. J. W. Nash, architect, Rochester :—

S. Alloway	£690 10 0
W. C. Snow	639 0 0
R. Sampson	619 0 0
A. H. Filley	590 0 0
W. Boorman (accepted)	487 0 0

ROCHESTER.—For alterations and renovating Wesleyan Chapel, Rochester. Mr. J. W. Nash, architect, Rochester. Quantities by architect :—

H. & J. Bathurst	£868 14 0
J. G. Naylar & Son	755 0 0
G. Gates	710 0 0
T. Callund & Son	690 0 0
C. E. Skinner (accepted)	669 0 0

SHOREDITCH.—For erecting warehouses, 58 and 60, Scrutton-street, Curtain-road, Shoreditch. Mr. J. Groom, architect. No quantities :—

Goodman	£1,447 0 0
Voller	1,327 0 0
Stimpson & Co.	1,320 0 0
Holloway	1,293 0 0
Beale	1,264 0 0
Mattock	1,193 0 0
Cheeseman	1,100 0 0

TOTTENHAM.—For the construction of a storm overflow receiver and precipitating tank, for the Tottenham Local Board :—

J. Bloomfield	£4,033 2 4
B. Cook & Co.	3,978 0 0
G. Ossenton	3,250 0 0
C. Killingback	3,148 0 0
George Bell, Tottenham (accepted)	3,068 0 0
Percival Hart	3,039 0 0

WINDSOR.—For preparatory schools, Beaumont, Old Windsor. Mr. J. F. Bentley, architect. Mr. W. B. Catherwood, surveyor :—

Silver & Son	£21,000 0 0
Knight & Son	21,000 0 0
Williams	20,376 0 0
Adamson & Son	19,118 0 0
Watson	18,900 0 0
Lawrence & Son	18,791 0 0
Higgs & Hill	18,780 0 0
Norris	18,773 0 0
Stimpson & Co.	18,553 0 0

WINDSOR.—For seven houses and shops, St. Leonard's-road, for Mr. E. O. Seaker. Messrs. Edgington & Summerbell, architects, Windsor :—

T. H. Kingerlee, Banbury	£8,992 0 0
W. Bourton, Reading	8,990 0 0
W. Woodbridge, Maidenhead	8,698 0 0
Snell & Co., Maidenhead	8,683 0 0
D. C. Jones & Co., Gloucester	8,596 0 0
E. Cornwell & Son, Eastbourne	8,350 0 0
W. Watson, Ascot	8,300 0 0
Woolgar & Son, Horsham	8,275 0 0
C. Claridge, Banbury	8,177 0 0
A. Kimberley, Banbury	7,992 0 0
Turtle & Appleton, Wandsworth	7,975 0 0
E. C. Howell & Son, Lambeth	7,893 0 0
Kirk Bros., Battersea	7,750 0 0
E. Jarvis, Banbury	7,300 0 0
T. Martin, Maidenhead	7,180 0 0
E. Bishop, Windsor	6,900 0 0

BANNER VENTILATORS.

The Strongest Exhaust Ventilators for all Buildings, Public Halls, Churches, Billiard-Rooms, &c.

HIGHEST PRIZES at all the most important Exhibitions.

BANNER SYSTEM OF SANITATION AND SANITARY APPLIANCES

WERE AWARDED AT THE

International Health Exhibition, 1884, One Gold Medal, Three Silver Medals, and One Bronze.

For further Particulars and Prices apply to

BANNER SANITATION COMPANY,

Wessex House, Northumberland Avenue, Charing Cross, London, W.C.